



Traffic Calming Strategy – Final Report

Town of Innisfil

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Abstract

The Town of Innisfil (Town) continues to grow in population and development each year, resulting in an increased traffic demand on the Town's roadway network. This increase in traffic flows has precipitated consistent, numerous, complaints from community members regarding speeding, cut-through traffic, and safety risks to vulnerable road users, including cyclists and pedestrians. The primary goals of the Town's current Traffic Calming policy and program are to reduce traffic speeds, decrease through traffic to acceptable levels, enhance the livability of residential neighborhoods, maintain access and mobility for all road users, and improve safety for pedestrians, cyclists, and motorists.

This Project culminated in the preparation of an overall Traffic Calming Strategy Report which is subdivided into five separate and related Chapters, each of which is a summary of a report generated throughout this Study:

A-1 Strategy Outline Report

The Strategy Outline Report provides a review of available background information, including best practices, and emerging technologies related to Traffic Calming.

A-2 Pilot Development and Implementation Report

This Report summarizes the development and execution of a Pilot Project Program with the goal to evaluate the site warrant and selection process along with the specific TCM applications within the Town. Ultimately, the Pilot Studies were conducted at three separate locations throughout Innisfil and included an evaluation of their effectiveness at reducing vehicle speeds and protecting vulnerable users. In

A-3 Innisfil Design Guide for Traffic Calming Measures (Including Updated Traffic Calming Policy)

One of the major components of this Project was the preparation of a new Design Guide for Traffic Calming that provides guidance for the implementation of TCM. This document includes guidelines for the review and decision-making process of Traffic Calming requests by providing a step-by-step process by which Town officials can determine if TCM are warranted at particular locations. This document includes guidance for the Town in updating its Traffic Calming policy and benchmarking it against other Traffic Calming policies from similar size neighbouring municipalities.

A-4 Community Education and Engagement Plan

This report guides Innisfil in the development and implementation of a Community Education and Engagement Plan to effectively communicate, educate, and inform all stakeholders. This plan includes strategies to effectively gather input from the public and other stakeholders regarding the Innisfil Traffic Calming program's on-going findings and results.

A-5 10-Year Traffic Calming Program

This report outlines a 10-Year Traffic Calming Program that provides implementation guidelines and recommended installations for Traffic Calming throughout the Town of Innisfil. This program provides a structured format and process, based on best practices, reliable data, and current engineering principles. This allows the Town to initiate the delivery of TCM at appropriate and warranted locations in a cost-effective manner.

Overall, the Innisfil Traffic Calming Project was a successful endeavour, primarily a result of Town staff, public, and other stakeholder involvement. The Town now has a two-pronged approach for using TCM in the future, including a revised protocol for responding to requests from the public, as well as a new, more proactive initiative-taking plan for deploying TCM more effectively.

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Introduction

The Town of Innisfil (Town) continues to grow in population and development each year, resulting in an increased traffic demand on the Town's roadway network. This increase in traffic flows has precipitated consistent, numerous, complaints from community members regarding speeding, cut-through traffic, and safety risks to vulnerable road users, such as cyclists and pedestrians, especially young students and elderly members of the community. Growth can also create opportunities to manage these concerns as the transportation network is expanded. The Town's objective is to deal with traffic-related issues, such as speeding, with the focus on the greater good for all Town (or "Our Place") residents and visitors.

The primary goals of the Town's Traffic Calming Measures (TCM) policy and program are to reduce traffic speeds, decrease through traffic to acceptable levels, enhance the livability of residential neighborhoods, maintain access and mobility for all road users, and improve safety for pedestrians, cyclists, and motorists. TCM, if chosen and implemented properly, can help reduce travel speeds on Town streets, which will enhance safety for all roadway users.

As a precursor to the Pilot Development and Implementation Report, a Strategy Outline Report (SOR) was prepared which included a review of background, traffic-related information, an assessment of the Town's current TCM program, the identification of potential best TCM practices, and exploring emerging TCM technologies which may be appropriate for the Town. The information presented in the SOR has been referenced throughout the Pilot Development and Implementation Report, and both are part of the overall Traffic Calming strategy undertaken by the Town. The results of the Pilot Development and Implementation Study was used to provide guidance for potential revisions to the Town's existing TCM policy.

The Pilot Development and Implementation Report provides the plans for three individual Pilot Studies at pre-selected roadways within the Town. The goal of these Pilot Studies was to provide information to the Town relating to TCM implementation and assessment, specific to Innisfil. This included the generation of before-and-after speed data that enabled the evaluation of the effectiveness of the deployed TCM. The ultimate goal of the Pilot Studies was to provide an analysis of the efficacy and acceptance of the tested TCM, which will help the Town better establish its policy and programming. This will ultimately guide the Town to select appropriate locations and to choose and implement TCM measures more-effectively in the future.

The overall Traffic Calming Strategy Report is subdivided into five separate and related Chapters, each of which is a summary of a task report generated throughout this Study.

A. Strategy Outline Report

The Strategy Outline Report provides a review of available background information, including best practices, and emerging technologies related to Traffic Calming. This includes a summary of the best Traffic Calming practices currently in place for municipalities of similar nature and size to Innisfil. This review also includes a reflection on the Town's prior Traffic Calming program and the data that supported it; researching emerging technologies to stay consistent with the Town's orientation for innovation; and

an assessment of the Town's road network to identify potential Traffic Calming pilot locations and associated Traffic Calming measures.

B. Pilot Development and Implementation Report

This Report summarizes the development and execution of a Pilot Project Program with the goal to test specific TCM applications within the Town. This Study was predicated on the speeding issues raised by the community, a problem which has the potential to worsen with the highly anticipated rapid growth in the Town, including the Orbit project. Ultimately, the Pilot Studies were conducted at three separate locations throughout Innisfil and included an evaluation of their effectiveness at reducing vehicle speeds and protecting vulnerable users. In addition, an assessment was made as to how the Town's residents reacted to the tested TCM.

C. Innisfil Design Guide for Traffic Calming Measures

One of the major components of this Project was the preparation of a new Design Guide for Traffic Calming that provides guidance for the implementation of TCM. This document includes guidelines for the review and decision-making process of Traffic Calming requests by providing a step-by-step process by which Town officials can determine if TCM are warranted at particular locations. These guidelines take into consideration public input, engineering principles, prior Traffic Calming experience and knowledge, and the Town's own priorities. Once site selection is complete the Guide then presents multiple TCM options, including a detailed discussion of their potential effectiveness, guidance on their design and implementation, as well as the positive and negative aspects and relative costs associated with each potential TCM.

As part of the Town's goals to reduce traffic speeds on its streets, enhance the safety for all road users, and preserve access and mobility for vulnerable road users, a Traffic Calming policy was first developed and approved by Council in 2013. That policy was then modified in 2018 to adjust for the current environment and prevailing conditions with the intent to make the program more responsive to the community's needs. The primary goals of the Town's Traffic Calming Policy are to reduce traffic speeds, decrease through traffic to acceptable levels, enhance the livability of residential neighbourhoods, maintain access and mobility for all road users, and improve safety for pedestrians, cyclists, and motorists.

The current Innisfil Traffic Calming project included guiding the Town in updating its Traffic Calming policy and benchmarking it against other Traffic Calming policies from similar size neighbouring municipalities. This effort included assuring that any new Traffic Calming policy meets or exceeds the minimum standards from the Transportation Association of Canada (TAC) Canadian Guide for Traffic Calming and the Ontario Traffic Manual (OTM). Included with the Design Guide was an update to the Town's Traffic Calming Policy document.

D. Community Education and Engagement Plan

This report guides Innisfil in the development and implementation of a Community Education and Engagement Plan to effectively communicate, educate, and inform all stakeholders. This plan includes

strategies to effectively gather input from the public and other stakeholders regarding the Innisfil Traffic Calming Strategy implementation and ongoing operation.

E. 10-Year Traffic Calming Program

This report outlines a 10-Year Traffic Calming Program that identifies, through the Design Guide process application, site selection and recommended installations for Traffic Calming throughout the Town of Innisfil. The 10-Year program covers a year-by-year implementation plan with a predetermined list of sites and TCMs for the first three years and follow-on process to apply the policy's application guidelines to select additional sites and measures on an ongoing basis for the following seven years. Capital and operating costs for the programs first three years and funding forecast for the remaining years is included. The plan for this program was developed to act as a live plan that has the flexibility to change to reflect the given circumstance in which the program will operate in. As the 10 Year Program is delivered there will be lessons learned with the experience gained and that will be feed back into the strategy with the policy and its delivery adapting, adjusting, evolving and strengthening as time passes within this ten-year period. This allows the Town to initiate the delivery of TCM at appropriate and warranted locations in a cost-effective manner.

A – Strategy Outline Report

1. Introduction

Over the past decade, the Town of Innisfil (Town) has consistently received numerous complaints regarding speeding, cut-through traffic, and safety risks to pedestrians and cyclists. Safety concerns have been increasingly raised due to perceived heavy traffic volumes and vehicles travelling at high speeds. In response to the complaints and inquiries received, the Town updated its 2012 Traffic Calming Policy as part of its 2018 Transportation Master Plan. It was also determined that the 2018 policy required updating.

The primary goals of the Town's Traffic Calming Policy are to reduce traffic speeds, decrease through traffic to acceptable levels, enhance the livability of residential neighbourhoods, maintain access and mobility for all road users, and improve safety for pedestrians, cyclists, and motorists.

The Town has indicated that the existing Traffic Calming Policy inhibits the ability to implement Traffic Calming Measures (TCM) as the current warrant requirements are generally not achieved.

The purpose of this Study was three-fold:

1. Develop a strategy, guidelines, and measures, with an **applied innovation lens**, to be used by the Town Staff for review and assessment of future Traffic Calming requests.
2. Assist the Town in developing its Traffic Calming policy and benchmarking it against Traffic Calming policies from similar size neighbouring municipalities while meeting the minimum standards from the Transportation Association of Canada (TAC) Canadian Guide for Traffic Calming.

3. Identify deficiencies in the current policy and develop a project priority list along with **recommendations for improvements to the warrants criteria** and bring them in line with TAC guidelines while using the Ontario Traffic Manual (OTM) Books.

This Study is subdivided into six separate and related tasks:

- F. Prepare a Strategy Outline Report to review background information, best practices, and emerging technologies.
- G. Implement a Pilot Project Program to test specific TCM applications within the Town and prepare a summary report that evaluates the Pilot projects.
- H. Develop a Design Guide for Traffic Calming that provides standards and warrant reports.
- I. Develop and implement a Community Education and Engagement Plan to effectively communicate, educate, and inform stakeholders.
- J. Develop a 10-Year Traffic Calming Program that provides implementation guidelines and recommended installations for Traffic Calming.
- K. Prepare a Traffic Calming Strategy Report to summarize the content of the preceding five tasks of the Study.

Traffic Calming Background

The Institute of Transportation Engineers and US Federal Highway Administration define Traffic Calming as “the combination of mainly physical measures that reduce the negative effects of motor vehicle use, alter driver behavior, and improve conditions for non-motorized street users”. TCM are typically installed on existing local or collector streets, in residential communities, with the purpose of reducing vehicle speeds and/or traffic volumes to improve safety for all, especially pedestrians and cyclists.

When addressing traffic related issues, it is standard practice within traffic engineering and transportation planning to apply a 3E approach covering the key essentials of Engineering, Education, and Enforcement in a coordinated fashion. When TCM are chosen and implemented based on Engineering principles, Education and Enforcement can be also be achieved. For instance, speed radar displays educate drivers on the speeds at which they are travelling and may also be programed to issue warnings or speeding tickets to individual offenders.

Engineering countermeasures are physical measures installed on an existing street designed to reduce vehicle speeds and/or traffic volumes. Engineering countermeasures include vertical or horizontal deflections, roadway narrowing, and pavement markings (amongst others). Vertical and horizontal deflections are physical measures installed on a roadway that change either the height (vertical) of the roadway or create a horizontal shift in the roadway, forcing motorists to slow down in order to maintain an acceptable level of comfort. Roadway narrowing physically narrows the width of the travel lane, resulting in reduced speeds for motorists to maintain an acceptable level of comfort. Pavement markings for Traffic Calming are often a series of markings that are applied to a roadway to create the illusion of increasing speed by decreasing the space between the markings.

2. Town of Innisfil Existing Traffic Calming Policy

The Town has a list of criteria that must be met before proceeding with the installation of TCM. The Town’s Traffic Calming Toolbox is comprised of 12 measures grouped into three categories, including vertical and

horizontal measures. These measures may be supplemented by other methodologies to further improve the efficiency of the TCM, including education, signage, enforcement, and roadside design.

Implementation of Traffic Calming Measures

The Implementation of TCM involves a logical stepped process as follows:

1. **Project Initiation:** The Traffic Calming review process can be initiated proactively by Town Staff to investigate areas of potential concern, or reactively, in response to complaints from the public, community associations, school boards, or businesses.
2. **Initial Screening:** The raised concern is to be compared to recent or outstanding requests for a traffic investigation.
3. **Investigation:** Review past concerns and collect traffic and geometric data.
4. **Warrant Criteria Screening:** Refer to the warrant criteria in **Table 1**. If the TCM warrants are met, proceed with the TCM design process.

Table 1: Warrant Criteria for Traffic Calming Measures

Warrant Item	Requirements
Class of Roadway	<ul style="list-style-type: none"> • Local or minor collector residential roadway or Downtown Commercial Street
Road Grade	<ul style="list-style-type: none"> • Road grade less than 5%
Block Length	<ul style="list-style-type: none"> • Block length greater than 120 metres between controlled intersections
Transit Route	<ul style="list-style-type: none"> • Roadway not a transit route (fixed-route transit only)
Vehicle Speed	<ul style="list-style-type: none"> • 85th percentile speed is 15 km/h or more over the speed limit.
Vehicle Volume	<ul style="list-style-type: none"> • Above 400 vehicles per day
Emergency Response	<ul style="list-style-type: none"> • Impacts on Emergency Services will not be significant (as determined in consultation with Emergency Services (Fire, Ambulance, and Police staff).

5. **Development of Alternatives:** Develop Traffic Calming alternatives.
6. **Finalize Concept:** Develop final Traffic Calming concept.
7. **Prioritization:** Determine ranking of installation as outlined in **Table 2**.

Table 2: Ranking Factors and Scoring for Traffic Calming Project Prioritization

Warrants	Local Road	Collector Road
Speed	<ul style="list-style-type: none"> • 2 points for each km/h that the 85th percentile speed is above the minimum Vehicle Speed threshold. 	<ul style="list-style-type: none"> • 1 point for each km/h that the 85th percentile speed is above the minimum Vehicle Speed threshold.

Warrants	Local Road	Collector Road
Volume	<ul style="list-style-type: none"> 1 point for every 100 vehicles of daily traffic (0-2,500 vehicles per day) 	<ul style="list-style-type: none"> 1 point for every 220 vehicles of daily traffic over 2,500 (2,500-8,000 vehicles per day)
Collisions	<ul style="list-style-type: none"> 5 points for 1 preventable collision(s) recorded by police in the past 3 years; or 10 points for 2 or more preventable collisions recorded in the past 3 years; or 10 points for 1 or more preventable collisions recorded resulting in personal injury in the past 3 years. 	
Pedestrian and Bicycling Factors	<ul style="list-style-type: none"> 5 points for each pedestrian generator 10 points for on-road bicycle network / crossed by bicycle network segment. 	

8. **Council Review:** Present proposal to Council, either as part of the regular, two-year Capital Budget, or as a mid-year request. If approved by Council, proceed to implementation.
9. **Evaluation:** Conduct an after study of speed and volume following the implementation of a measure using the same methods outlined in the investigation stage. Measures shall be monitored for a period of six months to a year after implementation to determine their effectiveness.

The first seven warrants listed above must be met before the Town proceeds with the initiation of all necessary monitoring, analysis, and evaluation to address the raised concerns. However, to date, no locations have met all the warrants in **Table 1**. Therefore, a weakness with the existing policy is that the criteria are too restrictive with respect to locations that are eligible for the implementation of TCM.

2.1. Town of Innisfil Complete Streets Initiative and Speed Management Policy

The Town’s Traffic Calming policy is directly connected to other Town policies currently in place. The following is a discussion of the Town’s current traffic-related policies with specific discussion of how they are affected by the potential new changes to the Town’s TCM policy.

Pedestrian and Cycling Network

The Town’s designated active transportation facilities include sidewalks, trails, on-street bicycle lanes, and paved shoulders. The lack of sidewalk in some areas may present difficulties for pedestrians travelling within and between settlement areas.

Roads Needs Study (2017)

The Town of Innisfil conducts a Road Needs Study (RNS) every five years to identify a ten-year road improvement plan for all Town-owned roads. The 2017 RNS study inventories all Town roads and indicates their environment, surface type, road class, and traffic loading. The current TCM Study used the 2017 RNS as a primary source of volume, posted speed, and roadway geometry (length and width) data. These data were used to create GIS Maps to review the Town’s existing road network and to help with the Pilot Project location selection process.

Traffic Operating Speed

The available speed data for the Town’s roadway network are deemed sufficient for the Pilot development; however, it would be prudent for additional speed data sources to be accessed by the Town in the future, such as “Big Data” provided by agencies, such as StreetLight Data. These sources have the potential to increase the coverage to the entire Town network, all day, for 365 days a year. This is particularly important when developing a proactive, rather than reactive, TCM program.

Collision Data Review

A collision data review was performed during the seven-year period, from 2014 to 2020. The collisions were tabulated and geographically plotted to identify crash locations and frequencies to be considered during the development of the pilot program.

Public Inquiries

Public inquiries received by the Town, on a regular basis, cover a relatively wide cross-section of traffic-related issues, such as pedestrian safety, parking, noise, and especially high travel speeds. In 2019, alone, of the 210 traffic inquiries received from Innisfil residents, 57% had speeding as the primary concern. This record of public inquiries illustrates that the Town is experiencing a noticeable trend of high travel speeds, throughout their roadway network, and highlights the Town’s desire to effectively deal with these ongoing issues on a proactive basis.

3. Best Practices and Emerging Technologies

Best Practices Review

A desktop review of best practices was conducted to identify key and unique elements in Traffic Calming policies and guidelines currently active in Ontario municipalities. This research included a review of ranking criteria, warrants analysis, installation, and removal procedures, as well as applicable measures, evaluation and monitoring methodologies, and public engagement.

Data sources

For a community to properly and effectively focus staff and financial resources to address traffic calming issues, it is essential that the municipality be able to access reliable and up-to-date speed, traffic, and collision data for the study area. Data access is essential for a proactive Traffic Calming approach.

Table 3 presents a summary of the available data sources for both speed and traffic volume data, including their positive and negative aspects.

Table 3: Data source summary

Data Source	Positive Aspects	Negative Aspects	Recommendations
On-the-ground Data collection	<ul style="list-style-type: none"> - Does not require complex data recording devices. - Provides immediate results. 	<ul style="list-style-type: none"> - Costly and time consuming. - Limited confidence in accuracy, often statistically unreliable. 	<p>Speed data: Recommend using this methodology for spot speeds.</p> <p>Traffic volumes: Only use this methodology when</p>

Data Source	Positive Aspects	Negative Aspects	Recommendations
	- Particularly useful for collecting speed data at specific locations, including before-and-after studies.	- May not capture periods of time when speeds or volumes are highest.	spot/brief periods of data required.
Traffic Movement Cameras	- Provides accurate data for longer/multiple study periods. - Relatively cost-effective. - Limited person hours required.	- May take several days to receive results from data provider. - Requires camera setups/removal.	Recommend using this methodology for short-term, movement-specific data collection, primarily at intersections.
Automated, Radar-Based Speed Collection	- Allows for longer periods of speed data collection and/or specific traffic flow periods. - Reduces the reliance of law enforcement personnel.	- Requires personnel to set up and program the cameras, remove the cameras, and download the recorded speed data/footage.	Recommend using this methodology for specific roadway applications as part of an ongoing data collection program.
“Big Data” (e.g., StreetLight Data)	- Provides accurate traffic volume and speed data for longer/multiple study periods. - Can source historical data.	- Relatively complex data-accessing methodology. - Can be costly when complex model is used.	Recommend using this methodology for both speed and traffic volume data collection and processing. Specifically useful for network-wide proactive speed management programs.

Note: The Town typically collects traffic data every five years. If data are only collected every five or more years, they may no longer be accurate or relevant.

4. Strategy

The strategy for the Town moving forward, is to design and deliver an award-winning, forward-thinking traffic calming policy that provides leadership in obtaining road safety excellence. The Town should develop a TCM policy that supports a Traffic Management program that recognizes and aligns itself with the Town’s ‘Our Place’ Official Plan and the growth and development plans for the Town. Such a policy must be innovative, proactive, progressive, inclusive, fiscally responsible, and citizen and safety-centric.

The foundation for the future TCM methodology will be based on a strong understanding of the Town’s current successes, deficiencies, and needs when dealing with speeding and overall safety for all road users. Innovation will revolve around, not only TCM, but also processes and procedures, supported by more proactive data collection and analytics. This will be a common thread woven throughout the policy and program.

A proactive approach towards achieving the Town’s traffic management goals will supersede the current, more reactive approach as the dominant program delivery method. This will be supported by current technological advances in both the areas of data and GIS based analytics. With the projected growth of the Town, a proactive approach will enable identification of TCM as new developments move forward.

Progressive Vision and Application

The Town must take advantage of the constantly evolving innovations and experiences related to traffic management in other jurisdictions. This information may include successes and failures with historic and emerging technologies, programing, and program administration. As well, the Town’s Traffic Calming policy, moving forward, must work hand-in-hand with other transportation policies outlined and defined in the Town’s Transportation Master Plan.

The Town’s TCM policy must be inclusive in a way that accommodates and focuses on vulnerable road users, namely pedestrians, seniors and children, mobility impaired, and cyclists. Furthermore, this policy must provide an environment that is welcoming, comfortable and safe, right down to the local street level.

A successful and sustainable TCM policy must be fiscally responsible in terms of both capital and operating costs. This can be made possible by implementing on-street measures that are effective and results driven, while being delivered at the minimum, feasible capital cost, with operating costs that are low, but still supportive of program delivery.

Providing a citizen and safety-centric TCM policy, that achieves a high level of service, can help the Town ensure safety for the residents of Innisfil who most urgently need support. To secure acceptance the TCM approach must be understandable and transparent for residents and visitors. These productive and proactive measures will help create neighbourhoods to be ‘Place Making’ and encourage active transportation for the entire community.

Approach

The approach to be taken to address the multiple issues presented in this report will include many action items per deficiency. **Table 4** presents the identified Deficiencies and the Objectives proposed to address these issues.

Table 4: Identified Deficiencies and Objectives

Deficiency	Objectives
TCM Warrants (e.g., speed and traffic volumes)	Adjusting warrant thresholds to provide more opportunities for TCM application.
Data availability and quality	Ensure that accurate, up-to-date, and relevant data are being used by the Town.
Analytics	Explore the expanded use of GIS and “Big Data”.
On-street Measures	Conduct pilot studies of various TCM that may provide tools for future implementation by the Town.

Deficiency	Objectives
Innovation	Exploring TCM technologies employed by other jurisdictions, as well as emerging innovations, to give the Town a larger inventory of potential TCM.
TCM Design	Develop a TCM Design Guide providing an implementation strategy tailored to the needs of the Town.
Communication/Engagement	Develop a communication strategy that is informative, transparent, and engaging.
Reduce Speeding on Town roads	Realize an overall achievement of better management of travel speeds on town roadways as a cumulative result of the TCM policy update.
Policy coordination	Ensure that the individual components of the revised TCM policy do not conflict with, but rather complement other Town initiatives such as the current Speed, Complete Street, Pedestrian Crossing, Roundabout, and the Transportation Master Plan update.

B – Pilot Development and Implementation Report

1. Introduction

The overall goal of this TCM Pilot Study was to update and improve the current TCM policy and program to help the Town to successfully deliver a TCM implementation strategy. This Study was predicated on the speeding issues raised by the community, a problem which has the potential to worsen with the highly anticipated rapid growth in the Town, including the Orbit project. A resulting objective of the overall TCM Pilot Study was to provide guidance on traffic speed management on future arterial roadways. Ultimately, the Town has a need for a TCM policy that is innovative and effective, and which fits with the ‘Our Place’ Official Plan philosophy.

This report builds upon the SOR with a focus on the ongoing plans for a Pilot Development and Implementation Report on three roadways within the Town. The goal of this Pilot Study was to provide information to the Town relating to TCM implementation and assessment, specific to Innisfil, including the generation of before-and-after speed data that will enable the evaluation of the measure’s effectiveness of the deployed TCM. The ultimate goal of the Pilot Study was to provide an analysis of the efficacy and acceptance of the tested TCM, which will help the Town better establish its policy and programing, and more-effectively choose and implement TCM measures in the future.

The following are the objectives of the Pilot Development and Implementation Report:

- Select three roadway segments within the Town which provide a cross-section of existing traffic and roadway conditions.
- Identify appropriate TCM for each roadway segment.
- Design and construct TCM.
- Evaluate the selected measures.

- Gauge the Town's residents' appetite for future applications of TCM within the Town's roadway network.
- Summarize the evaluation results of the pilots, which will guide subsequent study tasks, including the TCM Design Guide, and the 10-Year Program Forecast.
- Provide guidance for the implementation of a Community Education and Engagement Plan to effectively communicate, educate, and inform stakeholders.
- Provide a basis for a 10-Year Traffic Calming Program, including implementation guidelines and installation recommendations for Traffic Calming within the Town, including associated capital and operating costs.
- Provide guidance for updating the Town's existing TCM policy.

2. Strategy and Methodology

The following is a discussion of the strategy employed for developing a Pilot Development and Implementation Report, as well as a summary of the methodology to be followed during its implementation. A step-by-step presentation of the Pilot Study methodology is provided later in this report.

2.1. Strategy

The strategy for this Pilot Report includes choosing appropriate pilot test locations which exemplify speeding and other safety issues experienced historically throughout the Town. It was anticipated that testing individual TCM appropriate for these test sites would provide important information for the Town as they chose to employ TCM throughout their roadway network in the future.

2.2. Methodology

The methodology proposed for this Pilot Development and Implementation Study includes identifying preferred sites by screening roadway characteristics and classifications, annual volumes, reported collisions, and histories of speeding incidences and resident concerns, for all data available for roadways throughout the Town. It was essential that the screening (the methodology for which is presented in detail in **Section 3** of this Report), was undertaken through an objective analysis of available information rather than subjective or emotional decisions.

Using a GIS data processing platform, populated with the collected data, three appropriate test locations were chosen based on a cross-reference of the identified characteristics. With the input of the TAC committee, these three individual roadway sections were chosen for the Pilot Study as they best exemplify the Town's roadway network components while also presenting ideal locations for testing Traffic Calming Measures.

The ultimate choice of three pilot locations was based on the data available. These locations may not be the highest-priority locations within the Town, but they provide the most benefit in evaluating the effectiveness of TCM that have yet to be deployed in the Town. A more detailed warrant analysis and prioritization process was developed in the Design Guide for the overall Traffic Calming Strategy. This process was later applied as part of the 10-Year Traffic Calming Program.

Once the three test locations were determined, an analysis was made to identify potential TCM for each individual test site. The ultimate choice of test TCM was based on an examination of potential applications currently or historically used in other jurisdictions throughout the world, with a focus on proven measures and on innovation.

The geometric and traffic characteristics of each location were matched with potential TCM so that the most appropriate measures were paired with each location. Once the TCM were put in place, speed tests were conducted to identify changes in travel speeds at each location. “Before” speed data were first collected before the implementation of the measures, “After” speed data were then collected approximately 2 weeks and 6 weeks after the implementation of the measures, which were expected to be influenced by the employed TCM, the effect of each collected measure was quantified for further use by the Town.

The Pilot methodology was focused on roads that are either local or collector, have collisions and complaints associated with them, allow space to implement TCM within the road width, and are removed from primary emergency vehicle routes. This approach did not define what the Town’s ultimate, long-term warrant and screening process will look like, but it will assist in establishing the final TCM criteria details and process.

In applying the proposed methodology, the innovation of processing the available data through the use of GIS was also explored. Using this process for choosing test site locations was a more innovative and proactive approach for assessing potential speed-related problems. This was a purely engineered solution that relies on the available data in order to determine the appropriate candidate locations for traffic calming. In this case, complaints are not the trigger for the selection of locations, but are still one of the determining criteria.

3. Pilot Development Study

One of the goals of the TMC Pilot Development and Implementation Study was to choose three study sites on local or collector streets within the Town of Innisfil that represent a relative cross-section of the roadways located within the Town. This process consisted primarily of selecting the three test locations and the various appropriate TCM to be piloted. The pilots were to be in effect during the summer and fall of 2022.

3.1. Selection of Pilot Development Study Locations

The selection of Pilot Development Study locations was founded on the use of specific evaluation criteria applied to prospective pilot locations. During the selection process, Town staff reviewed a variety of criteria proposed by the EXP team. The four predominant factors deemed most important when evaluating Pilot Development Study locations were speed, traffic volumes, collisions, and the presence of pedestrian/cyclist facilities. Other criteria, as shown in **Table 5** below, were also considered.

Table 5: Selection Criteria for Study Pilot Locations

Elements of Evaluation	Criteria
Roadway Classification	Local and collector roads
Occurrence of Collisions	A minimum of one (1) collision in the past five (5) years
Complaints Received	A minimum of one (1) Traffic Calming requests

Roadway Surface Width	Surface width greater than 6.5 m
Posted Speed	Posted speed of 50 km/h or less
Area	Only residential areas
Segment Length	A minimum of 120 m
AADT	AADT less than 2,000 vehicles per day
85th Percentile Speed	At least 10 km/h above the posted speed
Existing Traffic Calming Measures	No other existing TCM

Only local and collector roads were considered for the Pilot Study as these are the default for the majority of Traffic Calming programs undertaken in other jurisdictions. As well, local and collector roads are more often the locations of active transportation facilities where children and other vulnerable users are more often present. Applying TCM on arterial roads that are designed for higher speeds, and which facilitate mainline transit, emergency services routes, truck routes, etc., is not normally desirable; however, there are particular TCM options, such as on-street parking and lane narrowing, which may be appropriate for higher-class roadways traversing dense urban settings providing they are designed properly for higher speeds and traffic volume conditions.

Collisions and complaints were used as selection criteria to identify roads where a potential need for TCM exists. The road surface width was required to be greater than 6.5 meters to provide enough physical space for individual measures to be implemented. The 85th percentile speed is the speed at which 85% of vehicles travel at or below. It is the primary means in selecting posted speed limits in traffic engineering and, in this case, was used to evaluate the degree at which drivers were travelling over the posted speed limit. Since speed mitigation is most often the primary objective of TCM, this criterion was deemed essential for the Pilot location selection process.

Some key considerations related to the selection criteria include, but not limited to:

- Reducing the 85th percentile speed (or over) warrant from 15 km/h to 10 km/h over the posted speed limit. This was required as no appropriate roadway sections were found to have 85th percentile speeds 15 km/h or more over the posted speeds (as per the Town’s current TCM warrant).
- Choosing locations which provided the required geometry to apply specific TCM, and where reliable speed data were available.
- Choosing test locations which exemplify the various roadway environments within the Town, rather than choosing high-priority locations.

Note: The Town has undertaken previous speed reduction measures at various locations throughout their jurisdiction. These applications have included temporary and permanent mounted radar speed displays, as well as temporary roadside radar speed display boards carried by mobile trailers.

One particular pilot project undertaken by the Town was using automated speed warning measures, by deploying roadside cameras to identify speeders and, subsequently, sending warning letters, instead of tickets, to their homes. This program has been deployed in multiple test locations throughout the area in partnership with the South Simcoe Police Department and the Town of Bradford West Gwillimbury.

Other traffic calming pilots undertaken by the Town included new pavement markings to influence driver speeds. These pilot locations included school zones on Booth Street and Westmount Avenue.

Road segments evaluated for the current Pilot Study included only those for which the required test data was available. In addition to the Road Needs Study (RNS) data, other data used to select the Pilot Development Study locations included daily traffic, speed data, collision data, community requests, and unassumed subdivision locations. It should be noted that this Study was started during the COVID pandemic when vehicle activities may have been non-typical.

The initial screening for the Pilot Study involved plotting the available data in a GIS platform (part of an innovative site location approach) to help identify potential areas where Traffic Calming was required. The data plotted included Traffic Calming cases (registered concerns from the community), collision events, operating speeds, and average daily traffic demands. The GIS models were prepared for all roadways within the Town's boundaries, including the communities of Alcona, Belle Ewart, Big Bay Point, Churchill, Cookstown, Fennell's Corner, Gilford, Innisfil Heights, Lefroy, Sandy Cove, Stroud, and anywhere else data was available to undertake the screening.

Locations that met all screening criteria were then reviewed by Town and EXP staff to determine three suitable Pilot Development Study locations.

3.2. Methodology

The first step in identifying the Pilot locations was to prepare an extensive preliminary list of possible locations, namely all roadway segments within the Town's jurisdiction. The locations considered included those for which data were made available to the EXP Team by the Town. These data included existing AADT traffic volumes, 85th percentile speeds, roadway classifications, road elements (pavement width, curb and gutter, shoulder, etc.), collision data, community requests, and unassumed subdivision locations.

The initial screening included plotting the available data in a GIS model to help identify potential areas where Traffic Calming may be required. It is important to note that data availability had a significant influence on the selection of locations as these were the only locations with readily available data previously collected by the Town. The data plotted included:

- Traffic calming cases (i.e., locations for which the Town received a complaint from the community regarding traffic calming);
- Reported 5-year collisions, including the type of each collision;
- The operating speeds of the roads (i.e., the surveyed 85th percentile speed); and
- Annual average daily traffic.

The GIS maps were prepared for the Town of Innisfil as a whole, and for each of the Town's communities: Alcona, Belle Ewart, Big Bay Point, Churchill, Cookstown, Fennell's Corner, Gilford, Innisfil Heights, Lefroy, Sandy Cove, and Stroud. The flowchart illustrated in **Figure 1** summarizes the selection process that was created to evaluate each location. This approach objectively distilled a great many potential segments down to those appropriate for further consideration.

Note: Although the flowchart depicted in **Figure 1** does not include identifying potential pilot locations which include schools and/or pedestrian/cyclist facilities, these factors are important and were included in the final stages of the selection process. With a desire to have a relatively wide range of pilot locations, it would be inappropriate to either completely include or exclude potential segments based on these factors.

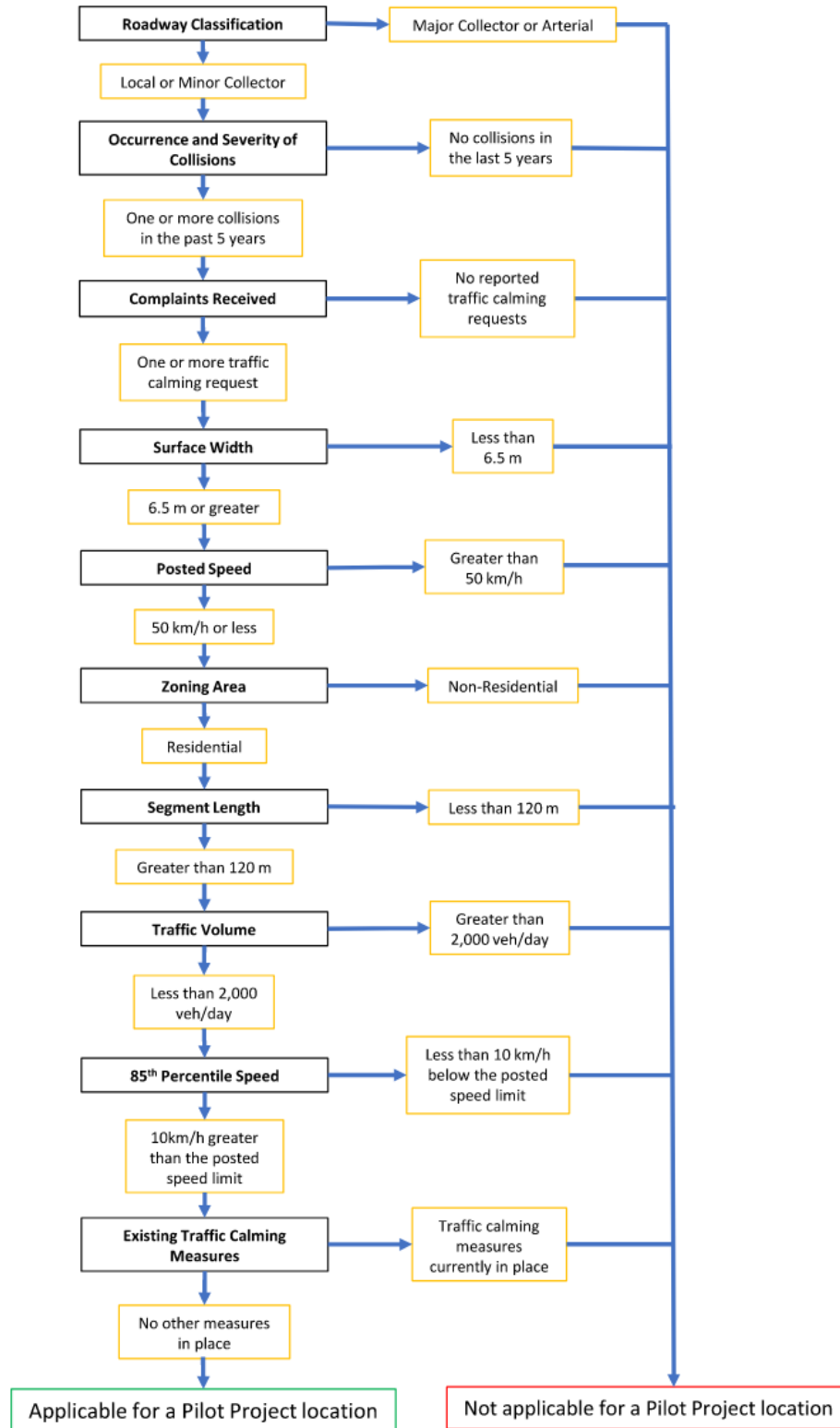


Figure 1: Pilot Development Study Selection Flowchart

3.3. Results of the Selection Process

The following five locations met the screening criteria developed for Pilot Development

1. **Shore Acres Drive**, from 20th Sideroad to Everton Drive
2. **Belle Aire Beach**, from Arnold Street to Maple Road
3. **Maple Road**, from Belle Aire Beach Road to 6th Line
4. **Shoreview Drive**, from Dalkab Crescent to Guest Road
5. **9th Line**, east of 25th Sideroad

Of these locations, the first three were retained as they met all of the screening requirements. Furthermore, these roadway segments exhibited a range of roadway environments: Shores Acres Drive was chosen as it included a rural-to-urban road transition zone; Belle Aire Beach Road Drive was chosen as an example of a local roadway within a residential/built-up area; and, Maple Road was chosen as it includes an adjacent pedestrian/cyclist trail.

Tables 6, 7, and 8 outline the key characteristics of each of the three recommended segments.

Note: The bolded text on the “Potential Solutions” rows at the bottom of **Tables 6, 7, and 8**, indicates selected solution

Table 6: Shore Acres Drive

Location	Shore Acres Drive (East end)
Road Segment	20 th Sideroad to Everton Drive
Radar ADT (veh/day)	1484
50 th Speed (km/h)	54
85 th Speed (km/h)	63
2019 AADT	1533
2029 AADT Forecast	1869
Surface Width (m)	8 (Two-lane)
ROW Width (m)	20.1
Shoulder / Sidewalk	Gravel Shoulder, Sidewalk on south side to approximately 215 m west of Everton Drive
Posted Speed Limit (km/h)	50 (80 from 20 th Sideroad to just east of railway crossing)
Segment Length (km)	1.62
Collision Map	<p>The map shows Shore Acres Drive running diagonally from the bottom-left to the top-right. It intersects with several other roads: Parkway Dr, Everton Dr, Acorn St, Marina Dr, Glen Kerr Dr, Lady Ln, Poplar Dr, Nesbitt Rd, Birch Rd, Gifford Rd, and 17th Sideroad. A blue line along Shore Acres Drive indicates a pilot proposal. Yellow stars represent calming cases, and yellow circles represent collisions. A legend at the bottom explains the symbols: a yellow star for Calming Cases, a yellow circle for Collision, a green line for Pilot Proposal, and various line styles for Roads (501-1000 vpd, 1001-5000 vpd, > 61 km/h), No Radar (< 100 vpd, 101-500 vpd), and Speed Limits (501-1000 vpd, 1001-5000 vpd, > 61 km/h).</p>
Listed Issues	Speeding on Shore Acres Drive
Potential Solutions	On-Road Sign Pavement Markings

Table 7: Belle Aire Beach Road

Location	Belle Aire Beach Road
Road Segment	Maple Road to Arnold Street
Radar ADT (veh/day)	2567
50th Speed (km/h)	N/A
85th Speed (km/h)	67
2019 AADT	1092
2029 AADT Forecast	1331
Surface Width (m)	8
ROW Width (m)	20.1 (Two-lane)
Shoulder / Sidewalk	Gravel shoulder, Shared pedestrian/cyclist lane denoted by pavement marking on north side of the road.
Posted Speed Limit (km/h)	50
Segment Length (km)	0.948
Collision Map	<p>The map shows Belle Aire Beach Road running diagonally from the bottom-left to the top-right. A cyan double-line area along the road indicates the 'Pilot Proposal'. Yellow stars represent 'Calming Cases' and green dots represent 'Collision' points. Intersecting streets are labeled: Spruce Rd., Balsam Rd., Willow St., and Arnold St. A legend box in the bottom-left of the map area provides the following details:</p> <ul style="list-style-type: none"> Legend ☆ Calming Cases ● Collision — (Cyan double line) Pilot Proposal > 61 km/h — (Grey line) 101 - 2000 vpd — (Blue line) 2001 - 5000 vpd
Listed Issues	Speeding on Belle Aire Beach Road
Potential Solutions	Chicanes (Two-lane, using planters), Speed Humps, Dragon Teeth.

Table 8: Maple Road

Location	Maple Road (Belle Aire Beach Rd to 6 th Line)		
Road Segment	Belle Aire Beach Rd to Spooners Rd	Spooners Rd to Maple Way	Maple Way to Button Place
Radar ADT (veh/day)	1362	1424	N/A
50th Speed (km/h)	47	51	N/A
85th Speed (km/h)	54	60	N/A
2019 AADT	1944	1457	1457
2029 AADT Forecast	2369	1776	1776
Surface Width (m)	9 (Two-lane)	9 (Two-lane)	9 (Two-lane)
ROW Width (m)	20.1	20.1	20.1
Shoulder / Sidewalk	Gravel shoulder, Shared pedestrian/cyclist lane denoted by pavement marking on west side of the road.		
Posted Speed Limit (km/h)	50	50	50
Segment Length (km)	0.33	0.80	0.54
Collision Map			
Listed Issues	Speeding on Maple Road, Collision History		
Potential Solutions	Road Narrowing, Speed Cushions, Flexible Bollards, Raised Crosswalk, Dragon Teeth, Additional Signage.		

3.4. Methodology -Traffic Calming Options

Establishing which TCM are most applicable for specific locations requires the identification of existing concerns at those facilities. TCM must be chosen that are most likely to address those particular issues. From communications with the Town, the greater majority of traffic-related concerns raised by resident inquiries related to the perception that drivers are driving at speeds above the posted speed limits on local and collector roads. Therefore, the focus of this Pilot Study was to mitigate excessive speeds at the pilot locations, which guided the selection of TCM going forward.

TCM incorporate design and management strategies into local streetscapes to control vehicle speeds and traffic volumes for the safety of both motorists and vulnerable road users. For example, speed tables or speed humps compel drivers to slow down to speeds at which they are better able to react to unexpected situations such as a child darting across the street. Even if a collision does occur, lower speed collisions are less likely to be fatal and typically result in fewer severe injuries.

Traffic calming is based on the idea that local and collector streets connect people to their communities, offering functionalities that help to create and preserve a sense of livability. These streets provide a service to the community and safely serve all road users, including pedestrians, cyclists, mobility impaired, and motorized vehicles. Traffic calming uses techniques designed to lessen the impact of motor vehicle traffic and help build livable communities where motor vehicles are intended to be one, but not the sole form of transportation.

3.5. Selection of TCM Tools

The first step in selecting which TCM were to be used at each particular location was to identify what the existing problems were, and which ones could be addressed through TCM application. The next step was to identify which tools were best suited for speed reduction at the subject location. This step was taken to prevent the installation of devices that may not address the actual problem and may, in fact, create new problems.

The selection of the best TCM tool also required the consideration of construction and maintenance costs, as well as the ability to remove the TCM at the end of the pilot.

The temporary TCM chosen for this Study were scheduled to be removed at the end of the Pilot implementation. The costs associated with these removals, as well as the ongoing maintenance costs, were included in the **budgetary cost estimates**.

Because each potential TCM application has both positive and negative impacts, the analysis considered devices with a net positive impact on the roadway. Each device was evaluated with consideration of its installation feasibility, including geometric or right-of-way limitations, available funding, and public acceptance.

3.6. Selection of Traffic Calming Measures

With the Study locations selected, the next step was to determine which TCM would be implemented, and where along the street corridors they would be installed. TCM measures come in all shapes and sizes, from the subtle to the very impactful. Each measure has appropriate applications, limitations of use, advantages, disadvantages, and associated costs. It was important to understand the issues associated with each TCM to identify the most appropriate application for the selected locations. Finding the right

application was important and will prevent the installation of measures that may not address the stated concern or that may even create new problems. Speed humps, for example, are well suited for speed control in many locations, but may create increased traffic noise and/or ground vibration. They may also cause delays to emergency services vehicles.

The TCM options listed in **Table 9** were evaluated for their suitability to the Pilot Study. This process included evaluating the feasibility of each temporary TCM based on budget considerations, expected level of effectiveness at the specific pilot locations, and the Town’s requirements and acceptance. For example, speed display signs were already in use at various locations throughout the Town as fixed and portable fixtures. Additionally, enforcement and education measures were removed from the potential measures list because they are currently in use as part of the ongoing Traffic Calming initiatives with the Town, or they are planned for separate assessments under alternate initiatives outside of this Study.

As a result of the TCM selection process, six suitable measures were selected for potential use during the Pilot Development Study (see **Table 9**).

Table 9: Suitable TCM for Pilot Development Study Locations

TCM	Description	Suitable Locations	Effectiveness
Speed Cushions / Raised Crosswalks	A non-continuous raised area across the width of a roadway.	<u>Speed Cushions:</u> <ul style="list-style-type: none"> Local or collector streets. Grades of 8% or less. Used on key emergency response routes. <u>Raised Crosswalks:</u> <ul style="list-style-type: none"> Local or collector streets. Streets with posted speed limits of 50 km/h or less. School Zones. Grades of 8% or less. 	Vehicle Speeds: Reduction in 85 th percentile speeds up to 8 km/h.
Speed Humps	A continuous raised area across the width of a roadway.	<ul style="list-style-type: none"> Local or collector streets. Residential areas. Low speed roads. Avoid in areas with small turning radius. Avoid on emergency roads. Grades of 8% or less. 	Vehicle Speeds: Reduction in 85 th percentile speeds between 6 and 13 km/h.
Chicanes (Two-lane)	A series of lateral extensions from alternating sides of a roadway that force drivers to steer around them.	<ul style="list-style-type: none"> Local or collector streets with posted speed limits of 50 km/h or less. Minimum of 750 veh/day or 100 veh/hr. during peak hour. 	Vehicle Speeds: Reduction in 85 th percentile speeds between 6 and 11 km/h.

Lane Narrowing	Reducing the lane widths of a roadway. Various methods, roadway lane lines, vertical delineators.	<ul style="list-style-type: none"> • Local or collector streets. • Residential areas. 	Vehicle Speeds: Reduction in 85 th percentile speeds up to 10 km/h.
Full-Lane Transverse Bars	A series of parallel bars painted on the roadway surface at a specified interval running parallel to the road's centreline covering most of the lane width.	<ul style="list-style-type: none"> • All road types. • Can be used along horizontal curves. • Transition zones. 	Vehicle Speeds: Reduction in 85 th percentile speeds between 5 and 15 km/h.
On-Road Signs	Information displayed on the pavement surface of a roadway that would usually be displayed on a sign along the side of the road.	<ul style="list-style-type: none"> • All road types. • School zones. • Transition zones. • Advance of hazards. • Applicable on curves. 	Vehicle Speeds: Reduction in 85 th percentile speeds between 6 and 14 km/h.

3.7. Pilot Development and Implementation Study Selection Results

The five chosen Traffic Calming measures, resulting from the screening process, were assigned to the three proposed pilot locations. **Table 10** lists the TCM selected for the Pilot Development Study at each of the three locations. Two of the locations had individual measures proposed and the third had three measures acting in conjunction with each other.

Table 10: Proposed Pilot Development Study to Mitigate Excessive Speed

Pilot Development Study Locations	Proposed Traffic Calming Measure
Shore Acres Drive, from 20th Sideroad to Everton Drive	On-Road Signs (Pavement markings)
Belle Aire Beach Road, from Arnold Street to Maple Road	Chicanes (Two-lane, using planters)
Maple Road, from Belle Aire Beach Road to 6th Line	Lane Narrowing, Flexible Delineators, Centreline Delineators, Speed Cushions, Raised Pedestrian Crosswalk

On-road signs were selected for Shore Acres Drive as they presented an opportunity to test a viable, lower-cost TCM solution.

A chicane application was determined to be an appropriate measure to apply along Belle Aire Beach Road based on their identified, potential positive effects with respect to speed reduction, as well as a relatively straight roadway alignment. Additionally, there was a desire that a TCM employing horizontal deflection be selected for one of the Pilot locations. The chicanes were temporarily implemented along this roadway segment using wooden planter boxes.

Lane narrowing and speed cushions were selected for the Pilot Study along Maple Road due to their reported speed reduction capabilities in combination with other TCM. Narrower lanes can also reduce pedestrian vehicle conflicts, as they make drivers more aware of their surroundings. These TCMs were also deemed suitable for the Pilot Study as they can be used as temporary installations. Additionally, Maple Road was deemed a good candidate for lane narrowing due to the existing pedestrian/cyclist trail located along the west side of the road. It was expected that lane narrowing would make this trail a more visible and pronounced part of the roadway.

The identified optional measure for the Maple Road Pilot location was the use of a Raised Pedestrian Crosswalk. This TCM technology was suggested as a crossing at Spooners Road, a T-intersection midway through the pilot corridor, which connects the pedestrian/cyclist trail on the west side of the road to a beach access on the east side of the road. It was estimated that this measure would present an added benefit as pedestrians crossing at this location would be more visible to drivers.

3.8. Pilot Location Designs and Implementation

The designs developed for the Pilot locations have been explained below in detail, and concept drawings of these applications are provided in **Appendix C**. Costs, monitoring requirements, and timelines are also addressed, below. The design drawings, provided by EXP, will be included in the final Tender documents.

i. Shore Acres Drive – On-Road Signs

On-road signs were selected as the proposed TCM for Shore Acres Drive. Signs provide information to drivers that would normally be provided through roadside signs. Information painted on the roadway is larger and directly in the driver's line of sight, making the driver more likely to notice the application and act accordingly. For this Pilot Study, on-road signs (i.e., pavement markings) displaying the maximum speed limit on Shore Acres Drive (50 km/h) were installed. There were three (3) of these signs in each direction (for a total of 6) staggered at specified intervals along the road segment, from 20th Sideroad to Everton Drive. It was recommended that reflective pavement markings be used for the on-road signs to ensure that this TCM remained effective at night.

The objective of implementing on-road signs along Shore Acres Drive was to mitigate speeding along this segment of the road by making drivers more aware of the posted speed limit. The primary disadvantage of using on-road signs is the regular maintenance that the pavement markings require and the decrease in effectiveness during the winter months due to snow cover. However, as this Pilot Development Study had a specified duration that concluded before winter, this was not expected to be an issue.

ii. Belle Aire Beach Road – Chicanes

A two-lane chicanes configuration, using wooden planters, was the proposed TCM for the Pilot Development Study on Belle Aire Beach Road. Chicanes consist of a series of extensions from the shoulder on alternating sides of the road that force drivers out of their straight path of travel to steer around the obstructions. This horizontal deflection is intended to reduce the speed at which drivers are comfortable travelling.

For this Pilot Study, as part of the Contractor's responsibilities, the chicanes were constructed using planters, pavement markings, and barrier curb. There was a series of three planter locations per direction along the road segment, between Arnold Street to Maple Road. The anticipated length for the horizontal

deflection section of the road's centreline was approximately 720 m, and the roadside obstacles were marked with appropriate signage.

Notes:

1. Planters, including vegetation, would require maintenance and upkeep to ensure that they were not aesthetically unpleasing.
2. The design and installation of the planters, including the living vegetation, required existing sight distances (including for local driveways) to be maintained.
3. The original pavement surfaces were to be reinstated, by the Contractor, to their original condition once the Pilot Study was completed.
4. The temporary barrier curbing was provided and installed by the Contractor and the configuration was determined (and submitted to the Town for approval) during the design stage. The concept details for the curbing are provided in **Appendix C**, of this Report.

The objective of implementing chicanes at this Pilot Development Study location was to mitigate speeding along this segment of Belle Aire Beach Road.

The disadvantages of this TCM application included a decrease in the space available for on-street parking and the need to avoid placing the planters of the chicanes in close proximity to driveways and property accesses. Since the roadway was narrowed, another potential issue was that cyclists and motor vehicles would be required to share a narrower lane. The impact of the chicanes on emergency vehicles was expected to be minimal. The roadway remained wide enough to allow an emergency vehicle to pass through without having to steer around the planters by straddling the centreline. However, this was also another disadvantage, as some non-emergency motorists could cross the centreline to avoid the lateral shift caused by the chicanes and travel straight through at higher speeds. This would happen more frequently where traffic volumes are low with little or no approaching traffic in the opposite lane.

iii. Maple Road – Lane Narrowing, Speed Cushions, Delineators, and Raised Crosswalk

Lane narrowing and speed cushions were selected in tandem as the TCM for the Pilot Development Study on Maple Road. Lane narrowing involves reducing the lane widths of the road so that drivers perceive the roadway as being less comfortable at higher speeds. For the Pilot Development Study on Maple Road, the bike/pedestrian shared lane on the west side of the road was maintained, with road edge lines and a widened double centreline being added to define the reduced lanes. In addition, flexible delineators/bollards were placed intermittently between the bike lane and the southbound travel lane, as well as on the centreline, to draw greater driver attention to the lane narrowing and desired speed conditions.

A potential consequence of lane narrowing is that there is less lateral separation between oncoming vehicles. However, this was not deemed a major issue, as the objective of this TCM was to slow vehicles down while the lane widths were sufficient for vehicles to safely navigate. As well, the new double centreline helped separate oncoming, opposing traffic.

It was recommended that reflective pavement markings be used for the lane narrowing segment to ensure that it remained effective at night. The lane narrowing segment was approximately 550 m long and started about 80 m from Belle Aire Beach Road.

Additionally, speed cushions were placed at the entrances and exits of the road narrowing segment. Speed cushions are a raised area of the road, but, unlike a speed hump, they do not cover the entire roadway width. This allows larger vehicles such as buses and emergency services vehicles to straddle the speed cushions to avoid their effects.

While speed cushions may help to reduce traffic noise due to vehicles travelling at lower speeds, this may be offset by increased noise due to braking and acceleration.

Note: The original pavement surfaces were to be reinstated, by the Contractor, to their original condition once the Pilot Study was completed.

In addition to lane narrowing and speed cushions, a raised pedestrian crosswalk was installed at the Spooners Road T-intersection. This intersection was an optimal location for a raised pedestrian crossing, as Spooners Road provides pedestrian access to the lake front on the east side of Maple Road. This crossing provided a pedestrian crossing point that provided greater visibility for those crossing the road, as well as a TCM that should reduce vehicle speeds as they approach the crossing. It is common practice in Ontario to support any pedestrian crossing with a traffic control device. Installing a Pedestrian Cross-over (PXO), more specifically a Type D PXO, at this intersection, is consistent with other applications within the province (Ontario Traffic Manual, OTM Book 15-Pedestrian Crossing Treatments).

Note: Speed cushions and the raised pedestrian crosswalk installed for the Pilot Development Study were temporary installations.

iv. Pilot Study TCM Implementation Costs

Pilot Study TCM implementation costs, including materials, installation, and removal for each of the three Study locations are provided in **Table 11**.

Table 11: Pilot Study TCM Implementation Costs

Study Location	Traffic Calming Measure(s)	Cost Estimate
Belle Aire Beach Road	Chicanes (two-lane)	\$37,700
Shore Acres Drive	On-Road Signs	\$24,000 for 6 on-road signs
Maple Road	Lane Narrowing	\$25,800
	Speed Cushions	\$7,500 per hump, total \$30,000
	<u>Raised Pedestrian Crossing/PXO</u>	<u>\$15,000</u>
	Total	\$70,800
General Work	Mobilization and Demobilization	\$3,000
	Construction Identification Signs	\$1,000 per sign, total \$6,000
	Maintenance	\$7,500 monthly

v. Monitoring and Data Collection

Prior to their installation, assessment criteria for the Pilot Development Study were developed for each location, by EXP in conjunction with Town staff. The assessment criteria were both qualitative and quantitative.

Regular monitoring of the installed TCM was required to assure that they remained in place, properly functioning, and not creating safety issues. Data collection for the Pilot Development Study took place before and after the TCM were installed for several weeks. Speed data was collected again after a two-month pilot period, prior to removal, so that the effectiveness of the TCM was confirmed.

The speed data helped the Study Team evaluate how effective each TCM was at reducing excessive vehicle speeds at each location. Feedback on the Pilot Study, from residents of the community, was also gathered as part of the Study's Task 4, Community Education and Engagement Plan.

vi. Timeline

The timeline for the implementation of the Pilots was late summer and fall of 2022. The TCM were in place until the middle of October 2022, (total 10 to 12 weeks) at which time the effectiveness of the three Pilot Studies was reviewed. The Pilot Development Study was monitored throughout the duration of their implementation and adjustments were made, as required.

4. Pilot Implementation

Once the TCM were assigned to the three test roadway sections, the plan to implement these measures was completed. This included the methodology and materials required for each TCM application, as well as the maintenance and removal methodologies that would also be required.

4.1. Shore Acres Drive

The on-road signs at Shore Acres Drive were applied as per the contract requirements. **Figure 2** presents one of these on-road signs after it was installed and in operation with the pilot area.



Figure 2: On-Road Signs at Shore Acres Drive

4.2. Belle Aire Beach Road

On Belle Aire Beach road, the chosen chicanes application was installed as per the contract requirements, These temporary constructions were installed alternating one side of the roadway to the other, with a total of six chins (3 on each side) installed within the pilot area. **Figure 3** presents the actual chicanes which were installed as part of the pilot project.



Figure 3: Chicanes at Belle Aire Drive

4.3. Maple Road

On Maple Road, within the pilot area, several TCM were deployed as part of the TCM pilot plan. These applications included two speed cushions installed side by side at each end of the Study Area (see **Figure 4**). In addition to the speed cushions, the single painted centreline of this section of road was replaced with a double centreline application (see **Figure 5**). This TCM was further reinforced by installing centreline delineators at the beginning of each end of the test roadway sections. A raised pedestrian crosswalk was installed at Spooners Road, approximately at the half point of the Maple Road pilot section (see **Figure 6**)



Figure 4: Speed Cushions at Maple Road



Figure 5: Double Centreline and Delineators at Maple Road



Figure 6: Raised Crosswalk at Maple Road

5. Pilot Study Results: Speed Data Statistical Analysis

Speed data were collected at six (6) different sites included in the pilot project to assess the effectiveness of different types of the chosen TCMs. Three sets of speed data for each site were collected on a weekday and included data collected before the measures were implemented as well as 1 month and 2 months into the pilot implementation schedule. Three of the locations had additional data collected on a Saturday before, 1 month, and 2 months after the measures were implemented.

Each of the pilot locations were analyzed to determine if vehicular speed were significantly lower with the TCMs in place than before implementation. Speeds were analyzed in terms of average speeds, as well as the 85th and 95th percentile speeds. The statistical significance of the decrease in speeds (if any) during the test period was determined using a standard paired t-test. The results of the speed data analysis for each pilot location are summarized below and shown in **Tables 8** through **13**.

5.1. Bell Aire Beach Road

i. Belle Aire Beach Road #1 (Between Street Addresses 1096 & 1103)

The speed analysis results for Belle Aire Beach Road, between street addresses 1096 & 1103, are presented in **Table 12**. These results indicate that the average speeds 1 month and 2 months after the TCMs were implemented at this location are not significantly lower during weekdays. However, the average speeds for the Saturday comparisons were found to be significantly lower 1 month after

implementation of the TCMs. In addition, the 85th and 95th percentile speeds were statistically significantly lower for all periods after the traffic calming measures were implemented.

Table 12: Belle Aire Beach Road #1: Speed Data

Time Period	Avg Speed (Km/H)	Statistically Lower?	85th % Speed (Km/H)	Statistically Lower?	95th % Speed (Km/H)	Statistically Lower?
Before Pilot (Weekdays Only)	54	-	67	-	73	-
1 Month	55	No	65	Yes	71	Yes
2 Months	56	No	65	Yes	71	Yes
Before (Sat)	58	-	68	-	75	-
1 Month (Sat)	55	Yes	65	Yes	71	Yes

ii. Belle Aire Beach Road #2 (Between Street Addresses 1050 & 1052)

The results for Belle Aire Beach Road, between street addresses 1050 & 1052, are shown in **Table 13**. These results indicate that the average speeds 1 month after the TCMs were implemented at this location are significantly lower compared to before implementation; however, after 2 months, the average speeds returned to what they were before the measures were implemented. The 85th and 95th percentile speeds were statistically significantly lower for both 1 and 2 months after the TCMs were implemented.

Table 13: Belle Aire Beach Road #2): Speed Data

Time Period	Avg Speed (Km/H)	Statistically Lower?	85th % Speed (Km/H)	Statistically Lower?	95th % Speed (Km/H)	Statistically Lower?
Before Pilot (Weekdays Only)	50	-	62	-	69	-
1 Month After	49	Yes	59	Yes	64	Yes
2 Months After	50	No	59	Yes	66	Yes

5.2. Maple Road

iii. Maple Road #1 (Between Street Addresses 1316 & 1317)

The results for Maple Road, between street addresses 1316 & 1317, are presented in **Table 14**. These results indicate that the average, 85th percentile, and 95th percentile speeds were all statistically significantly lower for all periods analyzed after the TCM were implemented.

Table 14: Maple Road #1: Speed Data

Time Period	Avg Speed (Km/H)	Statistically Lower?	85 th % Speed (Km/H)	Statistically Lower?	95 th % Speed (Km/H)	Statistically Lower?
Before Pilot (Weekdays Only)	53	-	61	-	66	-
1 Month	47	Yes	55	Yes	62	Yes
2 Months	48	Yes	54	Yes	61	Yes
Before (Sat)	47	-	58	-	63	-
1 Month (Sat)	46	Yes	55	Yes	61	Yes

iv. Maple Road #2 (Between Street Addresses 1278 & 1282)

The speed comparison results for Maple Road, between street addresses 1278 & 1282, are shown in **Table 15**. These results indicate that the average, 85th percentile, and 95th percentile speeds were all statistically significantly lower for all periods analyzed after the TCMs were implemented.

Table 15: Maple Road #2: Speed Data

Time Period	Avg Speed (Km/H)	Statistically Lower?	85 th % Speed (Km/H)	Statistically Lower?	95 th % Speed (Km/H)	Statistically Lower?
Before Pilot (Weekdays Only)	50	-	57	-	62	-
1 Month	45	Yes	53	Yes	58	Yes
2 Months	46	Yes	53	Yes	57	Yes

v. Maple Road #3 (Between Street Addresses 1245 & 1250)

The results for Maple Road, between street addresses 1245 & 1250 are shown in **Table 16**. These results indicate that the average, 85th percentile, and 95th percentile speeds were all statistically significantly lower for all periods analyzed after the TCMs were implemented.

Table 16: Maple Road #3: Speed Data

Time Period	Avg Speed (Km/H)	Statistically Lower?	85 th % Speed (Km/H)	Statistically Lower?	95 th % Speed (Km/H)	Statistically Lower?
Before Pilot (Weekdays Only)	49	-	55	-	61	-
1 Month	43	Yes	52	Yes	56	Yes
2 Months	44	Yes	51	Yes	55	Yes

5.3. Shore Acres Drive

vi. Shore Acres Drive #1 (Between Street Addresses 1244 & 1252)

The test results for Shore Acres Drive, between street addresses 1244 & 1252, are shown in **Table 17**. These results indicate that, for the weekday analysis, the average, 85th percentile, and 95th percentile speeds, 1 month and 2 months after the TCMs were implemented, were not statistically significantly lower (but, were actually found to be higher, compared to the speeds recorded before the TCMs were applied. However, the average, 85th percentile, and 95th percentile speeds 1 month after the TCMs were implemented were all found to be statistically significantly lower for the Saturday analysis.

Table 17: Shore Acres Drive #1: Speed Data

Time Period	Avg Speed (Km/H)	Statistically Lower?	85 th % Speed (Km/H)	Statistically Lower?	95 th % Speed (Km/H)	Statistically Lower?
Before Pilot (Weekdays Only)	55	-	63	-	70	-
1 Month	57	No	66	No	71	No
2 Months	56	No	64	No	70	No
Before (Sat)	56	-	69	-	78	-
1 Month (Sat)	51	Yes	63	Yes	71	Yes

5. Recommendations and Conclusion

The following is a summary of the conclusions and recommendations resulting from the Traffic Calming Measures Pilot Study:

5.1. Recommendations

Maple Road:

- Lane-narrowing has been known in other jurisdictions to be an effective TCM. At Maple Road, the double centerlines were most likely the most effective component of the multiple TCM applications. It is suggested that, in the future, new or existing roads include a double centreline, particularly where there are higher volumes and speeds, so that the travel lanes are narrower. Double centrelines are particularly useful on collector roadways where other TCM are not feasible. This potential TCM application must be evaluated on a case- by-case basis, possibly in combination with other TCM methodologies.
- Using double centrelines may be an effective TCM application in winter conditions if roads are kept clean.
- It appears that fewer vehicles parked illegally on the pedestrian/cyclist lane adjacent to Maple Road (on the west side) where the roadside delineators were in place. One effect of this change was improved safety for pedestrians and cyclists using the adjacent lane.
- Installing the speed cushions at each end of the pilot section of Maple Road provided a type of gateway conditions to that section of roadway, which is known to be an effective TCM. The side-by-side speed cushions, with the centreline delineator displaying the posted speed, sent the message to drivers that this was a speed-controlled section of roadway. Installing the raised crosswalk near the middle of the pilot section also reinforced to drivers that this is a controlled section of roadway.
- The raised crosswalk installed at Spooners Road appeared to be a major factor in slowing vehicles as they passed through this area. This application also provided a controlled pedestrian crossing which makes pedestrians more visible and encourages those crossing the street to do so at the controlled crossing.
- TCM applications which involve altering the existing centreline should be limited to more permanent installments. It was found during the pilot study that removing existing centreline paint lines is difficult and costly, which can make these types of TCMs expensive and difficult to execute if the paint lines are to be reapplied to their original locations after a temporary application.
- It is suggested that future TCM applications be installed immediately before the peak tourist season when new drivers to the area may be tested.
- The combination of TCMs on Maple Road were significantly effective at slowing traffic. It is difficult to decipher which of the measures had the most effect, but this pilot study reinforces the concept of using multiple TCM at roadways experiencing high travel speeds. It is suggested to use

the multiple TMP arrangement again in the future, perhaps replacing or adding other TCM to see if they are equally or more effective at slowing vehicles.

Belle Aire Beach Road:

- The chicanes installed at Belle Aire Beach Road were found to be relatively ineffective at slowing traffic (i.e., there was minimal, statistically significant reduction of travel speeds attributable to the chicanes installed at this location). However, the tested chicanes were quite spread out and the narrow roadway surface did not allow for effective off-setting of the centreline; therefore, vehicles were able to navigate the chicanes without slowing down significantly. It is suggested that, when using chicanes again in the future, there must be at least a 12 m paved surface and a much more pronounced offset centreline.
- It should be noted that, during the early stages of the Pilot Study on Bell Aire Beach Road, the wooden planters, which were an integral component of the chicanes applications, were stolen. This made the chicanes less visible to drivers and possibly limited the effectiveness of this TCM application.
- The staggered chicanes pairs could also be placed closer to one another so that drivers have to travel through the staggered pairs over less distance, therefore making them less comfortable traveling at higher speeds.
- Chicanes could be more effective, and safe if applied on a one-way street. This would also eliminate potential head-on collisions.
- Installing chicanes on roadways with multiple residences on both sides of the road makes it difficult to place the chicanes, themselves strategically and evenly. It also may create obstacles and sight obstructions to drivers trying to exit the residential driveways.
- Chicanes could potentially be used in winter conditions; however, this would require regular clearing around the chicanes so that drivers can see them at all times.

Shore Acres Drive

- On-road signs were found to be ineffective, resulting in no statistically significant reduction in travel speeds; however, these applications may be more effective in combination with other TCM.

General

- Identifying contractors to execute traffic calming measures can be a challenge, and this can make the process more expensive due to the size of the project.
- Combining TCM implementation with larger projects such as asphalt overlay, road rehabilitation, and road reconstruction can help to get a more cost-effective contract. The works don't have to be in the same location, as long as they are all part of the same contract.

5.2. Conclusion

Overall, this Pilot Study was a successful endeavor. It was determined that some applications are not fully effective (i.e., chicanes) or effective at all (i.e., on-street signs), at least in conditions similar to those tested

in this Study. It was also found that many TCM can be very effective if they are used in combinations (i.e., Maple Road).

The most important finding of this Study was that a multipronged TCM approach, similar to the one piloted on Maple Road, could have a similar effect on other roadways.

C – Traffic Calming Design Guide

1. Introduction

In 2022, the Town of Innisfil developed this Design Guide for Traffic Calming Measures (TCM) providing guidelines for the review and decision-making process of traffic calming requests. TCM, if chosen and implemented properly, can help reduce travel speeds on Town streets, while, in parallel, improving safety for vehicle occupants as well as vulnerable users such as pedestrians and cyclists.

This Guide provides a step-by-step process by which Town officials can determine if TCM are warranted at particular locations, taking into consideration public input, engineering principles, and the Town's own priorities. The Guide then presents multiple TCM options, including a detailed discussion of their potential effectiveness, guidance on their design and implementation, as well as the positive and negative aspects and costs associated with each potential TCM. This information, based on similar applications in other jurisdictions, as well as other national and regional TCM guidelines, will help the town make educated decisions on this important topic.

Traffic Calming Design – Decision Process Flow Chart

The following TCM adoption and design process includes three tasks, subdivided into 9 subtasks, as shown in **Figure 7**. This flow chart is set up to be followed from top to bottom, left to right, in sequence. Specific considerations for each step in the TCM decision process is presented in subsequent sections.

The Town's new policy involves two paths for calming traffic: a forward-thinking approach for implementation, and a responsive method for dealing with citizens' grievances.

The reactive process starts when a request for traffic calming is received. After that, the TCM Pre-study phase is launched, followed by the TCM study, and then the TCM implementation.

Conversely, the proactive process involves cutting out the TCM pre-study step and proactively screening all of the Town's roads in accordance with the TCM study step in order to determine and rank the locations that qualify for traffic calming. The TCM implementation would then take place after the selection as the last step of the process.

As big data advances to the level of providing dependable and precise data for use in programs, it can be effortlessly integrated into the proactive process to cover more streets and achieve satisfying results promptly.

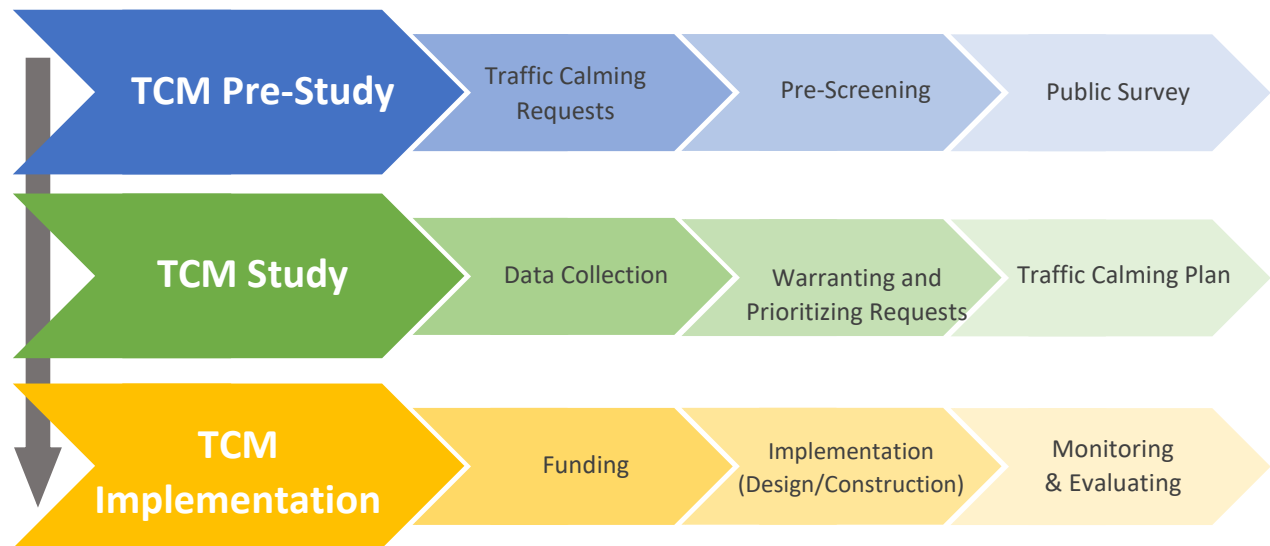


Figure 7: Traffic Calming Measures – Decision Process Flow Chart

2. TCM Pre-Study

The first step of the TCM process is to undertake a Pre-Study of existing conditions at the location(s) of concern. This would include a review of traffic calming requests from the public, as well as a review of the Town’s relevant policies, standards, and plans for its roadway network. All these inputs must be considered to confirm that there is a need for traffic calming at the requested location(s). The purpose of this Pre-Study is to choose locations where TCM are warranted and should be applied. This can streamline Town efforts as this preliminary process may eliminate locations that are not good candidates for TCM. The Pre-Study includes receiving traffic calming requests, pre-screening, and, potentially, a public survey on the subject. The following section presents the prescribed sequence for completing a TCM Pre-Study.

2.1. Receive Traffic Calming Request

The Town must have a TCM request process which includes complete and easy-to-follow instructions for the public on how such requests can be made, how they will be received, and the timeframe for review by the Town. The instructions must be provided online, as well in hard copy at the Town Hall.

2.2. Pre-Screening

Once a traffic calming request is received, the next step is to pre-screen the request using the criteria shown in **Table 18**. This process will help determine if a location is eligible for the implementation of TCM. The pre-screening criteria presented in **Table 18** should be considered as the minimum eligibility requirements for TCM. The location specified in the request is only to be considered as a potential candidate for traffic calming applications if all pre-screening criteria are met.

Table 18: Pre-Screening Criteria

Criteria	Requirement
Location Area	Primarily residential area
Road Classification	Local or Collector
Road Grade	Road grade \leq 8% (depends on mitigative measure)
Street Length	Street segment length with uninterrupted traffic flow (no traffic control) \geq 150 m
Traffic Volumes	Traffic volumes \geq 250 vpd (vehicles per day) (data no older than five years)
Posted Speed Limit	Posted speed limit of 50 km/h or less
Vehicle Speeds	85 th percentile speed is 10 km/h or more over posted speed limit (using available data, not older than 3 years)

2.3. Public Survey (Community Support/Concerns)

The final step in the TCM Pre-Study process is to conduct a public survey to confirm community support from residents within the study area and to identify any concerns/complaints with regards to traffic conditions. In order to achieve that, a compilation of all the people and businesses in the area ought to be created and contacted for their feedback on the request.

3. TCM Study

Once a location is confirmed to be a good candidate for the implementation of TCM, based on the Pre-Study process, a formal study will be required. This Study will help the Town further understand the existing conditions at the complaint location and to prioritize this location considering all other outstanding requests for TMC within the Town. This process will allow the Town to develop an overall traffic calming plan for the region, with each specific complaint and potential resolution ranked in terms of immediacy, feasibility, cost, and implementation requirements. The TCM Study process includes speed data collection, a warrant analysis, and

developing a TCM implementation strategy. The individual stages of the TCM Study process are described in detail below.

3.1. Data Collection

Prior to the traffic calming warrant process, a significant amount of data must be collected, including the following

Note: Some of these data may already have been collected during the Pre-Screening stage. Other data is collected/verified as part of the Roads Needs Study, the Transportation Master Plan, or through design.

- 85th and 95th percentile speeds
- Street length
- Road grade
- Traffic volumes and patterns (motor vehicles, pedestrians, cyclists)
- Traffic generators (e.g., residential, commercial, tourist establishments)
- Public complaints
- Collision history
- Road classification

The 85th percentile speed should be determined soon after the time of the TCM request. Traffic volumes for the Study Area are to be based on Average Annual Daily Traffic (AADT) values and must have been counted within the last 5 years, otherwise updated traffic counts should be collected. Collision history data may be sourced from MTO's ARIS database and should include reported collisions within the last 5 years of the request, including those involving motorists, pedestrians, and cyclists.

3.2. Warrants and Prioritizing Requests

The next step in the TCM process includes utilizing the collected data to determine where TCM may be most effectively implemented. This process can also be used to prioritize multiple potential TCM candidate locations to determine which facility(s) requires immediate attention. The purpose of this warrant process is to enable the Town of Innisfil to systematically prioritize their traffic calming efforts when there are multiple candidate locations for new TCM.

The Innisfil traffic calming warrant criteria, as well as the prioritizing process, are presented in **Table 19**. This TCM warrant functions as a point-based system, with the maximum amount of points a location can receive being 100. Each criterion in the warrant was selected and weighted based on a review of traffic calming warrants used in other Ontario jurisdictions, and considers safety and operational concerns that may be addressed with TCM.

The number of points a location receives, based on the criteria presented in **Table 19**, can be used to determine if a TCM(s) is warranted at a particular facility. If the warrant process produces a value of **15** or more, TCM may be useful to reduce travelling speeds. Once additional traffic speed data is obtained for the roadway segments which pass the Traffic Calming Warrant process presented in **Table 19**, the additional data can be added to the warrant process based on the **Table 3** methodology. At this stage, if the warrant process produces a value of **25** or more, the segment should be included in the prioritization process.

In some cases (e.g., where a fatal collision occurred within the last 5 years) a facility may warrant the implementation of a TCM even if the warrant threshold score is not achieved.

This process may also be used to evaluate the relative priority of one potential location over one or more other locations, with higher points indicating which location has a greater need for TCM. Once the warrant values for all potential locations are calculated, these locations should be prioritized from highest to lowest total scores.

Table 19: Traffic Calming Warrant and Prioritization

Criteria	Point Criteria	Max Pts.	Score
Vehicle Volumes	Local: 5 pts for every 1,000 AADT (rounded down). (e.g., 1,400 AADT would get 5 pts) Collector: 5 pts for every 2,000 AADT (rounded down). (e.g., 1,700 AADT would get no points, 2,400 would get 5 pts)	20	
Collision History	1 pt. per collision of any type (other than involving pedestrians/cyclists) in the last 5 years. 5 pts. per collision involving pedestrians or cyclists in the last 5 years.	30	
Public Complaints	5 pts. per complaint regarding vehicle speeds in most recent year to a maximum of 20 points.	20	
Pedestrians and Cyclists	10 pts for no sidewalk or bike lanes. 5 pts for every nearby (within 500 m) pedestrian generator (e.g., park, places of worship, town hall, mall, theatre, library). 10 pts for every nearby school.	30	
Total (minimum 15 to continue data collection)		100	

Criteria	Point Criteria	Max Pts.	Score
Vehicle Speeds	1 pt. for every 1 km/h that the 85 th percentile speed exceeds the posted speed limit.	30	

	Additionally, 1 pt. for every 1 km/h 95 th percentile speed exceeds 20 km/h over the speed limit.		
Total (minimum 25 for TCM consideration)		130	

3.3. Develop Traffic Calming Plan

The next step in the TCM process is to develop a Traffic Calming Plan for those locations determined to have the highest priority. The TCM Options Table (**Table A** in **Appendix D** of this report) describes each potential traffic calming application, including their estimated applicability, effectiveness, potential risks and constraints, as well as a preliminary estimation of installation costs (i.e., Low: Up to \$10,000, Moderate: \$10,000 to \$25,000, or High: More than \$25,000).

Table A in **Appendix D** of this guide provides a large range of TCM options based on various speed reduction techniques, including:

- Vertical Deflections
- Horizontal Deflections
- Pavement Markings
- Roadway Narrowing
- Interactive Measures
- Enforcement
- Education
- Surface Treatments
- Access Restrictions
- Others

4. TCM Implementation

A Traffic Calming Plan should be developed based on the priority ranking process presented in this Guide as well as the Town’s annual budget (both capital and maintenance) for traffic calming measures. Once a Traffic Calming Plan is developed, the chosen TCM must be implemented properly and effectively. The costs of the individual calming mechanisms must be ascertained to assure that the community has the current and future funding available to invest in the Plan. There are various suppliers who can provide the needed tools to install the calming measures where they have been prescribed. It would be useful to always know what the costs will be to implement the calming measures, especially those that require ongoing maintenance.

4.1. Confirm Funding

As the TCM plan moves from the planning stage to the implementation stage, the Town must determine its funding priorities and allocations. When several TCM options are being considered at locations throughout the Town, the costs associated with these measures must be compared to the available TCM budget in order to assure that the most necessary measures take precedence. If it is not possible to implement the entire TCM plan, the Town must invest in the applications that were determined to be of the highest priority. Once these measures are allocated funding, the Town should continue to plan the implementation of the remaining measures over the next few years. The Town must also be constantly aware of the ongoing maintenance costs associated with the implemented TCM.

4.2. Implementation (design/construction)

The budgeting of each potential TCM project will depend on the scope of the application, including the individual costs and timelines of the TCM measures employed. For projects not requiring significant roadway modifications, it is advised that the budgeting for the design and construction be done within the same year. For larger traffic calming projects, the budget for the design phase should be prepared for the first year and the construction budget should be prepared for the following year.

Design

Most of the potential TCM presented in this Guide require some measure of design. Potential TCM may have several variations which must be explored, with the appropriate application being chosen based on local traffic patterns, roadway configurations, environmental conditions, and other factors. It is advised that, once TCM are chosen and prioritized, the Town engage a professional designer who is thoroughly familiar with TCM, including their specific design and implementation requirements. The Town may choose to undertake some of the design process, themselves, but it is essential that a Traffic Engineer (or equivalent) at least review the Town's design and implementation plan.

The design process for virtually all the TCM presented in this Guide is already carefully outlined in various TCM design guides. The Transportation Association of Canada (TAC) has a detailed design process for TCM, as does the Federal Highway Administration (FHWA) and the American Association of State Highway and Transportation Officials (AASHTO) in the United States. These design guides are complete and well researched and provide the necessary instructions for designing the TCM presented in this Innisfil TCM Guide.

The Town has previously implemented a variety of TCM on various roadways, including temporary and permanent mounted radar speed displays, as well as temporary roadside radar speed display boards carried by mobile trailers. The results of these TCM applications are discussed further in the Innisfil Pilot Study Report.

Construction

Once a TCM has been chosen, and a full design is completed, the application must be installed correctly at the designated location. Ideally, these measures would be constructed when weather and roadway conditions are suitable (i.e., not during late fall or winter months). Several of the potential TCM may need to be removed in the fall and reapplied during the spring as they may interfere with winter snow removal, and possibly get damaged. If several TCM are chosen for a particular location, they should all be implemented within a short period of time to achieve the desired, combined traffic calming effect.

4.3. Monitor and Evaluate

Temporary and permanent TCM should be properly and diligently monitored once they are implemented. Traffic speed data should be regularly (e.g., after the first month and during the 3 months, at least one weekday and weekend day) collected at the subject roadway or intersection in order to verify that the installed TCM are having the desired effect. It is suggested that, 3 months after implementation, a study be conducted to determine if the TCM has been effective, and to what degree. This information will aid in deciding whether to continue using that particular TCM at that location, or replace it with another traffic calming option. It also may be decided to focus on another potential location where a TCM application may be more effective. Monitoring the effectiveness of a TCM at the 6 months and one year implementation milestones will also help the Town better understand how TCM work, how effective they can be (or not be), and help in the choosing of future TCM applications.

Note: As part of the monitor and evaluate process, ensure the TCM used does not result in an adverse impact on another street(s) in the area. For example, a TCM to reduce traffic volumes on a local street may result in traffic diverting to an adjacent street in the immediate area.

5. Pedestrian Crossing Warrant

The presence of motor vehicles, pedestrians, and cyclists should be considered before implementing TCMs. Pedestrian crossings should be paired with the appropriate traffic calming measures at locations where there are high crossing desire lines (e.g., schools, parks, and beach accesses). TCMs that may be compatible with pedestrian crossings include: raised crosswalks, curb radius reductions, traffic circles, roundabouts, curb extensions, raised median islands, coloured/textured pavement, textured crosswalks, and LED pavement markings.

Pedestrian crossovers require a separate warrant system from standard TCM. The Pedestrian crossing warrant methodology is presented in OTM Book 15 – Pedestrian Crossing Treatment.

6. Higher Class Roadways

Local and low-volume collector roads are most often the locations considered for Traffic Calming programs undertaken in other Canadian jurisdictions. Applying TCM on higher volume collector

and arterial roads, that are designed for higher speeds, emergency services routes, and truck routes is not normally desirable; however, there are particular TCM options, such as on-street parking, road diets (e.g., lane narrowing), and pavement markings, which may be appropriate for higher-class roadways within urban settings.

7. New Roadway Facilities

For greenfield developments involving the construction of new roadways and intersections, a traffic calming review should be conducted during the initial roadway network planning stage. During this planning process, a traffic calming plan should be required, with all potential TCM included on the site plans. All TCMs to be used for new developments should be selected and installed in accordance with the latest Innisfil Traffic Calming Design Guide.

D – Community Education and Engagement Plan Summary and Strategy

Community and Stakeholder Engagement

This section describes the Community and Stakeholder Engagement component of the Traffic Calming Strategy and provides suggestions for future community engagement during the implementation of the Traffic calming Strategy.

1. Summary of Community Engagement

A key component of the Innisfil Traffic Calming Strategy Project included community engagement. This summary provides an overview of the engagement process and feedback received. Supporting materials are provided in **Appendix E**.

Community Education and Engagement Plan

A Community Education and Engagement Plan (CEEP) was developed in consultation with Town staff to guide public project communications and engagement of the community and targeted stakeholders. This CEEP was developed in consideration of the Town's Community Engagement Toolkit. The document identified stakeholder groups and described the engagement mechanisms that would be used for this project. These mechanisms and how they were used are discussed below.

The CEEP is provided as **Attachment A** of **Appendix E**.

Project Webpage

A project webpage (<https://www.getinvolvedinnisfil.ca/tcs>) was established on the Town's *Get Involved Innisfil* Website. The webpage was used to provide information about the project, promote engagement opportunities, and provide an opportunity for interested stakeholders to register for updates. The webpage provided a brief description of what traffic calming is and an overview of the project. Links to various project activities were provided on the webpage, including materials from both open houses, the traffic pilot, and an online survey. The project also included a map tool that respondents were able to suggest locations for traffic calming.

Weblink were also provided to relevant pages within the Town's website, such as the Town's traffic calming page and school zone safety.

Screenshots of the project web page are provided as Attachment B of **Appendix E**.

Town of Innisfil Social Media

The Town's social media channels were used to help promote the launch of the project, the online survey, and the public houses. This included posts to the Town's Facebook and Twitter feeds. Video recordings of the two virtual public open houses were posted to the Town's YouTube and channel and linked to the project website.

Technical Advisory Committee

A Technical Advisory Committee (TAC) was formed to help guide the development of the Traffic Calming Strategy. The TAC membership include representatives from:

- Town of Innisfil staff (Capital Engineering, Development Engineering, Planning, Operations, Community Development Standards Branch);
- Town of Innisfil School Zone – Traffic Safety Advisory Committee;
- County of Simcoe;
- South Simcoe Police;
- Innisfil Fire and Rescue;
- County of Simcoe Paramedic Services;
- Simcoe County District School Board
- Simcoe Muskoka Catholic District School Board; and
- Bradford West Gwillimbury.

The role of the TAC was to assist the project team in the following areas:

- Identify stakeholder and public issues that are pertinent to the updating of the Town's Traffic Calming Policy;
- Provide insight on potential approval, regulatory, legislative, or other requirements;
- Provide input into the proposed Community Education and Engagement Plan;
- Provide comments on the draft Strategy Outline Report;
- Provide input into the development of the pilot program; and
- Provide input on relevant traffic calming standards and warrants.

Three TAC meetings were held (all virtually) during the development of the Traffic Calming Strategy, with one future final meeting planned to review the project final report.

TAC meeting #1 occurred on December 10th, 2020. The meeting was used to meet the TAC members and introduce the project to them, review the TAC Terms of Reference, and present the proposed CEEP.

TAC meeting #2 occurred on February 15, 2022. The meeting was used to provide an update to the TAC members, review the findings of the Review of Best Practices and Emerging Technologies study and the Strategy Outline Report, and to discuss the pilot project, including selection of the traffic calming

measures to be piloted and the pilot locations. Feedback from the TAC members were used to modify the pilot by changing one of the pilot locations.

TAC meeting #3 took place on November 22, 2022. The meeting was used to provide TAC members an update on Public Open House #1, the results of the traffic calming pilot studies, the Traffic Calming Design Guide, and the 10-Year Program.

The TAC membership and Terms of Reference are provided as **Attachment C in Appendix E**.

Public Open Houses

Two virtual public open houses (POH) were used to communicate the project to the public and encourage feedback. Each POH was promoted through the project website, distribution of notices to the project stakeholder list and project webpage registrants, and through the Town's traditional and social media. Recordings of both POH's were uploaded to the Town's YouTube page and made available on the project webpage.

POH #1 took place on April 26, 2022. The purpose of the open house was to introduce the project to the public. The presentation provided an overview of traffic calming in Innisfil and the traffic calming project and discussed the then-upcoming pilot projects. Polls were used during the meeting to help engage participants. There were 29 attendees at the POH, which included 8 members of the public and one member of the Simcoe Muskoka Catholic District School Board. The remaining attendees were members of the project team and Town of Innisfil representatives. Questions from participants were fielded through the chat feature of the open house. Suggestions were also provided on specific locations where speeding and other traffic safety related issues were a concern. Participants were encouraged to identify their suggested locations for traffic calming through the project webpage mapping tool. Other than inputs through the mapping tool (discussed further below), not subsequent feedback was received.

POH #2 took place on December 12, 2022. The open house presentation provided a brief overview of traffic calming in Innisfil and of the traffic calming project, including its goals and the approach used. The presentation also discussed the results of the pilot projects and the outcomes of the project (in particular the Traffic Calming Design Guide, the 10-Year Traffic Calming Program, updates to the Town's Traffic Calming Policy and the structure of the Traffic Calming Strategy). As in POH #1, polls were used during the meeting to help engage participants. At the end of the presentation, participants were able to ask questions through the chat function, which were answered during the presentation. No subsequent feedback was received following the POH.

The POH materials are provided as **Attachment D in Appendix E**.

Online Mapping Tool

The public was encouraged to use the project webpage's online map tool to suggest locations in Innisfil where they felt traffic calming should be introduced and why. The data was considered by the project team when identifying locations for the 10-year program. As of November 15, 2022, there were 33 suggested locations provided. Most of the suggested locations were east of Yonge Street, with some located in Cookstown. The main reasons cited were speeding (91% of locations) and increasing safety for pedestrians and cyclists (70%).

A summary of the feedback provided through the online mapping tool is provided as **Attachment E** in **Appendix E**.

Online Survey

An online survey was used to gather feedback from the public on the pilot projects. The survey ran from October 31 to November 21, 2022 using the Town's Bang The Table Engagement platform. There were 179 visitors to the survey, with 60 respondents providing feedback. The survey results were used by the project team to gauge the public's acceptance of the various measures used. The measures with the greatest overall support from respondents were the raised crosswalk and the shared bike/pedestrian lane, as well as measures used in combination.

A summary of the online survey results is provided as **Attachment F** in **Appendix E**.

2. Community Engagement During Implementation

Continued engagement with the community once the Traffic Calming Strategy is implemented will be important to maintain its relevancy both from the perspective of the general public as well as operationally. The suggested guidance on community engagement post-implementation focuses on the first two levels of the Community Engagement Continuum, as presented in the Town's Community Engagement Toolkit:

- **Inform:** The Toolkit defines the Inform portion of the continuum as assisting the public in understanding the problem or solution by providing them with relevant information. The Toolkit notes the Town will keep the community informed by providing information that is accurate, accessible, timely and transparent.
- **Consult:** The Toolkit defines the Consult portion of the continuum as acquiring public input into priorities or decisions and receiving validation on the process. The Toolkit notes the Town will listen to the community, acknowledge and respond to its concerns, and provide feedback on how input has influenced decisions.

Informing the Community

It will be important for the Town to inform the community how it can participate in the traffic calming program and the results of the program. This one-way flow of information can be undertaken using on-going communications or through scheduled targeted communications. On-going communications would consist of information that be routinely accessed and is continuously present. Scheduled targeted communications would include messaging that is strategic, may be used to achieve specific goals or objectives, and would run for a defined period of time. **Table 20** below provides suggestions for on-going and specific communications to inform the community.

Table 20: Informing the Community

Category	Purpose of Communications	Communication Tools
On-going Communications	<ul style="list-style-type: none"> Promotion of Traffic Calming Program Inform community how to submit a traffic calming request, including what information is required Inform community what the Town is doing about traffic calming and to improve traffic safety Ad hoc acknowledgment or responses to traffic calming requests or questions 	<ul style="list-style-type: none"> Traffic calming webpage Town's call centre Town staff
Scheduled Targeted Communications	<ul style="list-style-type: none"> Promote the success of Traffic Calming program and its accomplishments (e.g., a community check-in at Year 2 or 5) Piggy back on safety-related initiatives to promote the traffic calming program and how the public can access it 	<ul style="list-style-type: none"> Social media blasts Mixed and mass media promotion campaigns Municipal webpage

Consulting the Community

Consultation is a two-way flow of information between the municipality and the community; messaging and information is delivered from the municipality to the community, and information (often in the form of ideas and feedback) is provided back to the municipality for its consideration. As with the “Inform” portion of the engagement continuum, consulting with the community can also be undertaken on an on-going basis or can be scheduled and targeted. **Table 21** below provides suggestions for on-going and specific communications to consult with the community.

Table 21: Consulting the Community

Category	Purpose of Consulting	Communication Tools
On-going Consultation	<ul style="list-style-type: none"> Obtain traffic calming requests from the public Ad hoc identification of traffic calming issues 	<ul style="list-style-type: none"> Traffic calming webpage Town's call centre Municipal councillors Mailing or e-mail addresses
Scheduled Targeted Consultations	<ul style="list-style-type: none"> Periodic update to Traffic Calming program (e.g., during 2 or 5 year check-in) Update list of candidate locations in 10-year program based on input from public 	<ul style="list-style-type: none"> Social media blasts Mixed and mass media promotion campaigns Municipal project webpage Online surveys Mapping tool

E – 10-Year Plan Report

1. Introduction

As part of the Town's goals to reduce traffic speeds on its streets, enhance the safety for all road users, and preserve access and mobility for vulnerable road users, a traffic calming policy was first developed and approved by Council in 2013. That policy was then modified in 2018 to adjust for the current environment and prevailing conditions with the intent to make the program more responsive to the community's needs. As that version of the program still had several limitations and barriers to achieving the overall goal of meeting the community needs, the Town initiated a more detailed review and update project (RDS363: Traffic Calming Strategy) from which this 10-year traffic calming program was derived. This traffic calming review and update consists of six study components which, when delivered, would present a new traffic calming strategy with a more thorough, responsive, and effective policy and associated program that matches the Town's goals and objectives for better speed management. The 10-Year Traffic Calming Program, as presented within this report, was the fifth and final project component prior to the final project report being completed. The overall review and update project consisted of the following study components:

- **Strategy Outline Report:** Reviewing all background information and summarizing the best practices of municipalities of similar size to Innisfil. This review included a reflection on the Town's prior traffic calming program and the data that supported it, researching emerging technologies to stay consistent with the Town's orientation for innovation, and an assessment of the Town's road network to identify pilot traffic calming locations with associated traffic calming measures.
- **Pilot Project Program:** Implementation of a pilot project with traffic calming measures (TCMs) covering three separate town locations, with an evaluation of their effectiveness and how the Town's travelers reacted to them.
- **Design Guide:** Development of a traffic calming guide that provides a methodology to warrant traffic calming measures, a strategy to select, prioritize and implement the measures, and guidance in designing them.
- **Community Education and Engagement Plan:** Establishment of a plan to effectively communicate, educate, and gather input from the public and stakeholders on the project's component findings and results.
- **10-Year Traffic Calming Program:** Provision of a proactive program to cover 10 years of traffic calming implementation with recommended locations, traffic calming measures, and preliminary budgetary cost estimates.
- **Traffic Calming Strategy Report:** Delivering a summary report that encapsulates all the deliverables prepared, including a revised Town traffic calming policy and overall program.

The new traffic calming strategy and resulting 10-year program provides a proactive methodology that the Town can rely on to implement TCMs in the future. The program provides a structured format and process, established on best practices, sound data, and current engineering principles. It allows the Town to initiate the delivery of TCMs at appropriate and warranted locations in a cost-effective manner.

This 10-year program delivers a prioritized list of locations with traffic calming measures and associated costs, based on the findings, tools, and processes resulting from the four preceding project components. Listed locations are recommended to be implemented within the initial three years of the 10-year period with a supporting structure and processes to determine additional locations, the measures that suit those locations, and the implementation schedule along with costs to cover the remaining seven years. The Town will run, maintain, and regularly update the 10-year program to ensure it is current, efficient, and producing problem-solving solutions to address the Town's speeding issues.

Speed management within the Town's road network is a Council priority and directive that is addressed by Town staff through a host of measures. The updated traffic calming policy and program is one of several linked programs that collectively achieve that directive.

2. 10-Year Traffic Calming Program

The delivery of TCMs identified through the new traffic calming strategy falls within the 10-Year Traffic Calming Program, where the program has been partitioned into two phases. The first phase, covering the initial three years of the program provides a predetermined list of priority locations with identified TCMs for that three-year period. This enables the program's implementation process to be kick started, with a focus on implementation, and sets a foundation for the second phase. The second phase then engages the Design Guide process and draws on the experience gained from phase one, to evaluate and identify further locations and measure through an annual review to cover the remaining seven years of the program. Running in parallel in the second phase is the continued implementation of the new locations and the measure selected to go with them. In addition to identifying locations and traffic calming measures, this plan establishes a means to identify costs used to secure the program funds, ensuring TCMs can be implemented over a sustained period.

The first phase approach allows for an aggressive procedure to establish TCMs within the Town. The recommended program for these three years, which is laid out later in this report, follows an implementation schedule to accommodate a total of fifteen locations. Working with a three-year list of locations is beneficial as it allows for experience with TCMs to be gained before new locations are identified. It also allows the evaluation and selection process to stay in line with and take into account any modifications to the Town's roads, keeping it current, and it also permits program-reliant data to be updated in a timely fashion, in particular, speed data which will have a shelf life of three years only. As speed data validity is set to three years, going beyond that period to create the list of locations would mean utilizing outdated and inaccurate information. With this approach, the priority locations list will be a live list with the program being updated annually.

Although only three years' worth of TCMs are identified in detail, they do provide a reasonable sense of annual spending, and that allows for a forecast to cover the 10-year period. This then provides for a longer-term budget projection to support longer-term strategic financial planning ensuring that the Town has the financial resources to support a sustainable program over the next 10 years.

With the initial phase of the program being implemented over the first three years, with a set priority list, there is time during this period to focus on program adjustments related to the costs of measures, how

the measures are implemented, what is effective and what is not, and what works and does not work in Innisfil. From there, the number of annual locations addressed, and costs allocated to the program can be fine-tuned.

The following report sections identify how the chosen 10-year program street sections were selected, prioritized, and TCMs identified, along with a cost and implementation schedule. The base approach, process, and procedures to undertake this are driven by the results of the Strategic Report, the Pilot Project Program, and the Design Guide.

2.1. Methodology

The 10-year program was developed based on a sound methodology applied to the Town's streets in order to establish an efficient program that targets the most vulnerable streets and those that are most in need of a traffic calming plan. The criteria outlined below are to be implemented as described in the program's Design Guide. This methodology combines, engineering through the evaluation of the data available including public input, use of best practices, and drawing on the experience and judgment of Town staff who are familiar with the specifics of the streets of Innisfil. The Town's policy used as part of the methodology for the development of this program provide guidance on how to warrant TCMs implementation through the application of different criteria and following an established process. It can be found in the Town of Innisfil Transportation Master Plan, Appendix D2.

The methodology is broken down into three different tasks: selection and prioritization of locations qualified for traffic calming, selection of adequate and applicable measures that are appropriate to address the issues observed in each selected location, and, finally, preparing a budgetary cost estimate for design, implementation, and operation.

A collection of processes was used to identify the locations and the associated measures. These processes were derived from previous study components. The strategic approach to selecting locations is identified in the **Strategy Outline Report**, where it allows for both a proactive and reactive-driven selection of preliminary locations. The selection of warranted locations applies procedures identified in the Town's new TCM **Design Guide**. The process for the selection of TCMs and the pricing of the measures is provided in both the **Design Guide** and the **Pilot Program Summary**. Application of the process was facilitated in a GIS environment with the assessment data on that platform.

2.2. Pre-Screened Locations

For potential TCM location selection, the program's first step was to apply the newly developed pre-screening process presented in the Design Guide to the complete GIS road network owned and maintained by the Town to establish a preliminary list of locations that qualify for traffic calming consideration. The criteria followed to establish the list of pre-selected locations is as presented in **Table 22**.

Table 22: Pre-Screening Criteria

Criteria	Requirement
Location Area	Primarily residential area
Road Classification	Local or Collector
Road Grade	Road grade \leq 8%
Street Length	Street segment length with uninterrupted traffic flow (no traffic control) \geq 150 m
Traffic Volumes	Traffic volumes \geq 250 vpd (vehicles per day) (data no older than five years)
Posted Speed Limit	The posted speed limit of 50 km/h or less
Vehicle Speeds	Measured 85 th percentile speed is 10 km/h or more over the posted speed limit (using available data no older than three years)

Because of the limited amount of data accessible to initiate the program, the volume parameter, a piece of the Pre-screening criteria, was set to 1,000 vehicles per day to determine the locations for the initial three years of the program. This value was chosen to filter the Town's roads in order to highlight the most utilized streets. This approach was chosen in an attempt to affect the most heavily traveled streets that require traffic calming. The goal was to increase, to the greatest degree possible, the influence level and driver exposure to the Town's traffic calming program measures. It is advised, however, that the proposed pre-screening criteria be shifted to include a minimum vehicular volume of 250 vehicle per day for the remainder of the program. This adjustment is expected to allow inclusion of lower volume roads in the 10-year plan going forward. Similarly, the street length criterion was applied on the Town's different segment of streets which doesn't separate segments according to traffic control but according to side streets intersecting the roads. However, it is anticipated that the roads screened out wouldn't have been part of the list of prioritized locations due to the other parameters that factors in that ranking. It is advised, however, that for the remainder of the program (when updating the program in the future as well as when running the program for the remaining years of the 10-year plan), the proposed street segment length criteria be applied as advised in the pre-criteria table. If the data doesn't permit that, the criterion should be by-passed and can be re-evaluated after the locations are screened and prioritized in the following step of the process.

A total of 1,755 sections of road that fall under the Town of Innisfil's jurisdiction formed the starting point of the 10-year program development evaluation. After the pre-screening was completed, the number of locations that pre-qualified for TCMs was reduced to 74 road sections.

Figure 8 presents those 74 sections that were further analyzed during the selection process.

Figure 8: Map of Pre-Screened Locations for Traffic Calming



2.3. Pre-Selected Locations

After gathering all the pre-screened locations that qualified for traffic calming consideration, the second step of the process consisted of gathering and evaluating other key data (e.g., collision data, presence of pedestrians and cyclists, and public complaints) such that those pre-screened locations could be scored and ranked in order of priority. The scoring and ranking criteria that were applied in this step are taken from guidelines developed and presented in the Design Guide.

An initial scoring, review, and ranking of the pre-screened locations was applied utilizing the scoring system presented in **Table 23**.

Table 23: Traffic Calming Warrant and Prioritization part 1

Criteria	Point Criteria	Max Pts.	Score
Vehicle Volumes	Local: 5 pts for every 1,000 AADT (rounded down). (e.g., 1,400 AADT would get 5 pts) Collector: 5 pts for every 2,000 AADT (rounded down). (e.g., 1,700 AADT would get no points, 2,400 would get 5 pts)	20	
Collision History	1 pt per collision of any type (other than involving pedestrians/cyclists) in the last 5 years. 5 pts per collision involving pedestrians or cyclists in the last 5 years.	30	
Public Complaints	5 pts per complaint regarding vehicle speeds in the most recent year to a maximum of 20 points.	20	
Pedestrians and Cyclists	10 pts for no sidewalk or bike lanes. 5 pts for every nearby (within 500 m) pedestrian generator (e.g., park, places of worship town hall, mall, theatre, library). 10 pts for every nearby school.	30	
Total		100	

Although vehicle speed data is part of this scoring and ranking process, not all the pre-screened locations had this data, thus, the 85th percentile speed evaluation, scoring, and ranking was brought into the process in a second iterative stage. Accordingly, the scoring and ranking list was reviewed for those locations that didn't have speed data. For those roadway sections where speed data was not available, a prioritization process to collect speed data was initiated and those pre-screened locations that ranked highest in the initial review would be counted within budget limitations. Speed data was then reviewed from a screening perspective and locations that did not make the speed threshold were dropped from further consideration. The remaining locations went through a secondary scoring and ranking, taking into consideration the speed data and applying point values identified in **Table 24**. With speed data considered, the final scoring and priority ranking was based on a total of 130 possible points. Locations that had a score higher than 25 points were deemed to have enough collective points to consider them warranted for the application of TCMs.

Table 24: Traffic Calming Warrant and Prioritization Part 2

Criteria	Point Criteria	Max Pts.	Score
Vehicle Speeds	1 pt. for every 1 km/h that the 85 th percentile speed exceeds the posted speed limit. Additionally, 1 pt. for every 1 km/h 95 th percentile speed exceeds 20 km/h over the speed limit.	30	
Total		130	

Note the 10-year program was prepared with speed data that was no older than three years. Speed data older than this was deemed to be invalid, and locations associated with older data required refreshed data. In order to sustain an active 10-year program, volume data must be collected on a regular basis to comply with the data validity conditions of this program. In addition to speed and volume data, all other data used for screening, warrant assessment, and priority ranking should be kept up to date on an annual basis. This allows the 10-year program to be a dynamic program that is constantly and consistently updated, relevant, and assessed according to current conditions.

2.4. List of Selected Locations

With the warrant confirmed locations, the top fifteen ranked locations were included in the 10-year program for TCMs. Fifteen locations were chosen to coincide with the projected budget funding the Town committed to prior to the completion of the 10-year program.

Figure 9 displays the locations selected for TCMs.

Table 25 presents the location list with details, including road names and street limits, the 85th and 95th percentile speeds, as well as final segment ranking scores.

Note that the roadway classifications provided in this table are based on the Town's inventory and naming conventions. All roads under the Town's jurisdiction are deemed to be collectors when identified as Major Roads. Arterial roads typically fall under County jurisdiction with some exceptions (e.g., King St, formerly known as Hwy 89, is currently under the Town's jurisdiction).

Figure 9: Map of the Locations Eligible for Traffic Calming

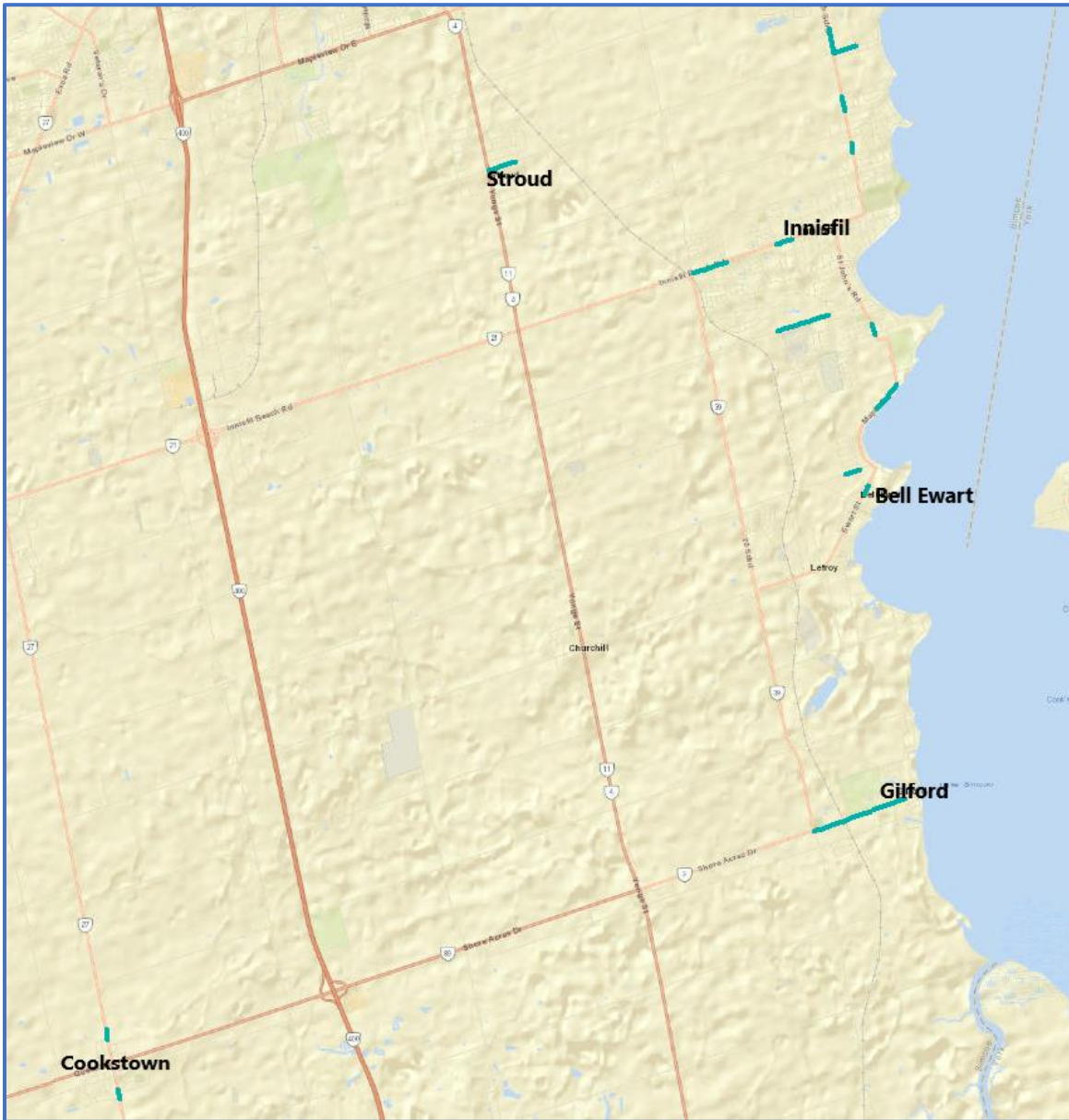


Table 25: 10-Year Program - Final List of Locations

Facility Id	Road Name	Road Class	From	To	Speed Limit (km/h)	85th Percentile Speed (km/h)	95th Percentile Speed (km/h)	Total Points
RDS-19735	Innisfil Beach Road	Local	20th Sideroad	Webster Boulevard	50	66	70	86
RDS-13707	Victoria Street	Local	Yonge Street	North Gate Street	50	61	65	68
RDS-14219	Innisfil Beach Road	Local	Jans Boulevard	Adullam Avenue	50	64	69	63
RDS-13239	25 th Sideroad	Local	Carniola Drive	10th Line	50	67	71	60
RDS-13601	25 th Sideroad	Local	Joseph Street	Willow Avenue	50	62	68	60
RDS-17606	7th Line	Local	Webster Boulevard	Quarry Drive	50	78	86	57
RDS-14859	Ewart Street	Local	Arnold Street	Chapman Street	50	78	86	52
RDS-21137	King Street North	Major Road / Collector	Garibaldi Street	250m North of Garibaldi Street	40	61	68	52
RDS-14457	Saint Johns Road	Local	Kennedy Road	Nantyr Drive	50	66	71	48
RDS-13238	10th Line	Local	25th Sideroad	Christie Street	50	61	68	45
RDS-13425	25th Sideroad	Local	31m South of Rose Lane	Candaras Street	50	65	70	42
RDS-14815	Belle Aire Beach Road	Local	Reid Avenue (60m East of Willow Street)	Temple Avenue	50	62	69	42
RDS-15735	King Street South	Major Road / Collector	Victoria Street E	Riley Street	40	68	74	41
RDS-14581	Maple Road	Local	Maple Way	Button Place	50	61	66	30
RDS-15435	Shore Acres Drive	Local	20th Sideroad	Everton Drive	50	63	70	28

2.5. Proposed Measures for the Selected Locations

Traffic calming provides a range of benefits led by speed reduction. Other benefits include a reduction in traffic noise, improved conditions for all models of travel, enhanced street aesthetics, and providing safer streets for vulnerable users.

A review of the road dynamics, geometry, and operation has been completed to identify the specific issues with speed and the TCMs that will best mitigate those issues.

Two types of TCMs were considered for future implementation in the Town: permanent measures and temporary seasonal measures.

Permanent measures are mainly physical road geometry changes to either address ongoing operational conditions or forecasted speed issues. Permanent TCMs are usually proposed in the planning stage of a new road's design or during the reconstruction and renewal of the Town's road system, although they can be introduced as standalone items and not tied to any other construction activity.

Temporary seasonal measures are those TCMs that are implemented during the spring, summer, and/or fall, and removed during the winter season when they are hard to maintain in inclement weather conditions and impede road operations and maintenance equipment. Temporary TCMs fall in all categories, including vertical measures, horizontal measures, and enforcement measures, where each category and type of TCMs are to be used to address a particular problem.

Each location was thoroughly reviewed in terms of traffic data, geometrical configurations, and street operation to identify the appropriate solution. Using the Design Guide's TCMs toolbox, and drawing on the findings from the Pilot Project Program and other measures tested by the Town, a collection of applications was selected to address observed issues. Measure selection also considered the Town's road construction schedule and current routing of emergency services vehicles (i.e., fire, paramedics, and police). The length of the section in which measures are recommended corresponds, for the most part, to the sections that were assessed and deemed warranted; however, where it made sense, sections were or could be adjusted to best fit the application being recommended. **Table 26** provides the proposed measures for each location with guidance on its implementation.

Table 26: Locations with Proposed Traffic Calming Measures

Facility Id	Road Name	From	To	Measure
RDS-19735	Innisfil Beach Road	20th Sideroad	Webster Boulevard	Speed Display Board at both ends of the street 40 Flexible delineators (20 per direction) separating bike lanes from road lanes every 30 m ¹
RDS-13707	Victoria Street	Yonge Street	North Gate Street	16 Centreline Flexible Bollards with speed limit every 30 m ¹ Extension of double centreline and edge lines
RDS-14219	Innisfil Beach Road	Jans Boulevard	Adullam Avenue	Widen the bike lane to 1.5m and narrow the double lanes to 3m each 34 Delineators (17 per direction) separating the bike lane from the traffic lane every 30m ¹
RDS-13239	25th Sideroad	Carniola Drive	10th Line	8 Centreline Flexible Bollard with speed limit every 50m ¹ Use of medians in T-intersection approaches ²
RDS-13601	25th Sideroad	Joseph Street	Willow Avenue	6 Centreline Flexible Bollard with speed limit every 50m ¹ Use of medians in T-intersection approaches ²
RDS-17606	7th Line	Webster Boulevard	Quarry Drive	Full Lane Transverse Bar over 300m distance starting from the 20 th Sideroad and 7 th Line intersection in the WB direction ² Double widened Centreline (0.5m apart) 18 Centreline Flexible bollards with speed limit displayed every 50m ¹
RDS-14859	Ewart Street	Arnold Street	Chapman Street	Implementation of 6 speed cushions (3 per direction) Widened Double Centreline (0.5m apart) 3 Centreline Flexible Bollards (between speed cushions) 24 edge line Flexible Delineators (every 30m) ¹
RDS-21137	King Street North	Garibaldi Street	250m North of Garibaldi Street	Speed Enforcement Camera (one per direction) to be used to issue warning tickets On-street parking lane and painting Temporary Bulbouts using flex stakes or planters
RDS-14457	Saint Johns Road	Kennedy Road	Nantyr Drive	Pedestrian Crossover (PXO) + Raised Crosswalk (permanent crosswalk) near the park entrance (Kennedy Rd) Implementation of 4 Speed Cushions (2 per direction)
RDS-13238	10th Line	25th Sideroad	Christie Street	Double Widened Centreline (0.5m apart) 13 Centreline Flexible Bollard with speed limit every 30m ¹ Implementation of 6 Speed Cushions (3 per direction)
RDS-13425	25th Sideroad	31m South of Rose Lane	Candaras Street	2 Speed Display Boards On-Road Messages (speed limit) Pavement Markings ²

¹ Delineator and Bollard recommended spacing can be adjusted to accommodate driveways entrances (applicable to all the proposed streets)

² Recommended measures to be built into the proposed design options

Facility Id	Road Name	From	To	Measure
RDS-14815	Belle Aire Beach Road	Reid Avenue (60m East of Willow Street)	Temple Avenue	Island and gateway 60m East of Willow Street Double Widened Centreline (0.5m apart) 8 Centreline Flexible Delineator with speed limit every 30m ¹
RDS-15735	King Street South	Victoria Street East	Riley Street	7 Centreline Flexible Bollard with speed limit every 50m ¹ Pedestrian crossover (PXO), textured Crosswalk at Victoria St and Bulb out at the crosswalk
RDS-14581	Maple Road	Maple Way	Button Place	Double Widened Centreline (0.5m apart) 10 Centreline Flexible Bollard with speed limit every 50m 35 Flexible Delineators every 15m to separate shared pedestrian/bike lane from traffic lanes ¹
RDS-15435	Shore Acres Drive	20th Sideroad	Everton Drive	Island and gateway near west of Rail Crossing 32 Centreline Flexible Bollard with speed limit every 50m ¹ Double Widened Centreline (0.5m apart)

2.6. TCM Implementation, Operation and Maintenance Cost

A budgetary cost estimate for the 10-year program was prepared based on current data, the results of the Pilot Project, and cost projections due to inflation. The estimate was carefully calculated to cover the expenses for the individual measures plus the general work estimate which encompasses the costs for mobilization and demobilization, bonds and insurance, plans for traffic regulation, project signage, and lastly, operation and maintenance charges. The maintenance and operation cost estimate includes yearly set-up, removal, and storage of the temporary TCMs, as well as their maintenance costs. **Cost does not include design, tendering, construction administration, traffic monitoring, inspection services, and level of staffing required to run the program.**

Table 27 provides detailed information about the recommended TCMs and a breakdown of the estimated costs for each location. It is anticipated that these costs will be significantly impacted by the ongoing rising costs of construction due to inflation; as a result, the master spreadsheet provided in association with this document will provide the option to include the observed inflation rate and update the costs accordingly.

Table 27: Installation, Operation, and Maintenance Costs for the Proposed TCMs

Road Name	From	To	Recommended Measures	Measure Implementation Cost (2023 dollars)	General Work Cost (2023 dollars)	Total Implementation Costs (2023 dollars)	Annual Operation and maintenance Cost (2023 dollars)
Innisfil Beach Road	20th Sideroad	Webster Boulevard	Speed Display Board at both ends of the street 40 Flexible delineators (20 per direction) separating bike lanes from road lanes every 30 m	\$30,000	\$10,200	\$40,200	\$16,000
Victoria Street	Yonge Street	North Gate Street	16 Centreline Flexible Bollards with speed limit every 30 m Extension of double centreline and edge lines	\$16,472	\$10,200	\$26,672	\$11,488
Innisfil Beach Road	Jans Boulevard	Adullam Avenue	Widen the bike lane to 1.5m and narrow the double lanes to 3m each ⁴ 34 Delineators (17 per direction) separating the bike lane from the traffic lane every 30m	\$24,050	\$10,200	\$34,250	\$25,500
25th Sideroad	Carniola Drive	10th Line	8 Centreline Flexible Bollard with speed limit every 50m Use of permanent concrete medians in T-intersection approaches	\$71,400	\$10,200	\$81,600	\$8,000
25th Sideroad	Joseph Street	Willow Avenue	6 Centreline Flexible Bollard with speed limit every 50m Use of permanent concrete medians in T-intersection approaches	\$134,800	\$10,200	\$145,000	\$11,500
7th Line	Webster Boulevard	Quarry Drive	Full Lane Transverse Bar over 300m distance starting from the 20 th Sideroad and 7 th Line intersection in the WB direction Double widened Centreline (0.5m apart) 18 Centreline Flexible bollards with speed limit displayed every 50m	\$34,750	\$10,200	\$44,950	\$23,450
Ewart Street	Arnold Street	Chapman Street	Implementation of 6 speed cushions (3 per direction) Widened Double Centreline (0.5m apart) 3 Centreline Flexible Bollards (between speed cushions) 24 edge line Flexible Delineators (every 30m)	\$57,540	\$10,200	\$67,740	\$38,730
King Street North	Garibaldi Street	250m North of Garibaldi Street	Speed Enforcement Camera (one per direction) to be used to issue warning tickets On-street parking lane and painting Temporary Bulbouts using flex stakes or planters	\$85,670	\$10,200	\$95,870	\$7,500

Costs developed with the assumption of usage of non-durable paint

⁴ The Town should consider implementing the proposed bike lane and vehicle lane design from 20th Sideroad to east of Jans Boulevard if the road geometric constraints permit it.

Road Name	From	To	Recommended Measures	Measure Implementation Cost (2023 dollars)	General Work Cost (2023 dollars)	Total Implementation Costs (2023 dollars)	Annual Operation and maintenance Cost (2023 dollars)
Saint Johns Road	Kennedy Road	Nantyr Drive	Pedestrian Crossover (PXO) + Raised Crosswalk (permanent crosswalk) near the park entrance (Kennedy Rd) Implementation of 4 Speed Cushions (2 per direction)	\$62,700	\$10,200	\$72,900	\$22,500
10th Line	25th Sideroad	Christie Street	Double Widened Centreline (0.5m apart) 13 Centreline Flexible Bollard with speed limit every 30m Implementation of 6 Speed Cushions (3 per direction)	\$60,575	\$10,200	\$70,775	\$32,725
25th Sideroad	31m South of Rose Lane	Candaras Street	2 Speed Display Boards On-Road Messages (speed limit) Pavement Markings	\$36,000	\$10,200	\$46,200	\$19,000
Belle Aire Beach Road	Reid Avenue (60m East of Willow Street)	Temple Avenue	Permanent concrete island and gateway 60m East of Willow Street Double Widened Centreline (0.5m apart) 8 Centreline Flexible Delineator with speed limit every 30m	\$59,850	\$10,200	\$70,050	\$9,650
King Street South	Victoria Street East	Riley Street	7 Centreline Flexible Bollard with speed limit every 50m Pedestrian crossover (PXO), flat textured Crosswalk at Victoria St and Bulb out at the crosswalk	\$72,350	\$10,200	\$82,550	\$18,400
Maple Road	Belle Aire Beach Rd	Button Place	Double Widened Centreline (0.5m apart) 10 Centreline Flexible Bollard with speed limit every 50m 35 Flexible Delineators every 15m to separate shared pedestrian/bike lane from traffic lanes	\$23,075	\$10,200	\$33,275	\$17,275
Shore Acres Drive	20th Sideroad	Everton Drive	Permanent concrete island and gateway near west of Rail Crossing 32 Centreline Flexible Bollard with speed limit every 50m Double Widened Centreline (0.5m apart)	\$92,850	\$10,200	\$103,050	\$26,250

2.7. TCM Implementation Schedule

A review of the Town’s anticipated capital budget for the implementation of the 10-year program, as well as the projected operation and maintenance budget, was undertaken to produce an implementation plan that would make the program feasible and flexible, aligning with the Town’s current and future direction for this program.

Due to the sensitivity and availability of the data needed for the implementation of the program, the schedule created for the 10-year program was based on the following methodology: A 3-year initiation plan for the locations and measures proposed in this report. Locations and measures for the remaining seven years to round out the 10-year program will be generated from the Town’s ongoing implementation of the program, where a supporting data collection program will be needed to feed the application, resulting in locations being outputted from the provided spreadsheet application. Measures to be applied will depend on the nature of issues observed in the designated locations. Until the program is fully running, the costs for the final seven years of the program will be projected out to provide annual costs for the complete 10-year period.

The order in which the TCM locations are implemented in the first three years does not align completely with the ranking scoring, as adjustments were made to balance the number of projects and their costs with the Town’s project budget.

The proposed schedule for the first three years of this program is as shown in **Table 28**.

Table 28: Schedule and Total Cost per Year for the TCM Program First Three Years

Year	Road Name	From	To	Total Implementation Costs (2023 dollars)	Non-Cumulative Annual Operation Cost And Maintenance (2023 dollars)
1	Innisfil Beach Road	20th Sideroad	Webster Boulevard	\$293,472	\$46,988
	Victoria Street	Yonge Street	North Gate Street		
	25 Sideroad	Carniola Drive	10th Line		
	25 Sideroad	Joseph Street	Willow Avenue		
2	Innisfil Beach Road	Jans Boulevard	Adulam Avenue	\$315,710	\$117,680
	7th Line	Webster Boulevard	Quarry Drive		
	Ewart Street	Arnold Street	Chapman Street		
	King Street North	Garibaldi Street	250m North of Garibaldi Street		
	Saint John's Road	Kennedy Road	Nantyr Drive		
3	10th Line	25th Sideroad	Christie Street	\$405,900	\$123,300

Year	Road Name	From	To	Total Implementation Costs (2023 dollars)	Non-Cumulative Annual Operation Cost And Maintenance (2023 dollars)
	25 Sideroad	31m South of Rose Lane	Candaras Street		
	Belle Aire Beach Road	Reid Avenue (60m East of Willow Street)	Temple Avenue		
	King Street South	Victoria Street East	Riley Street		
	Maple Road	Maple Way	Button Place		
	Shore Acres Drive	20th Sideroad	Everton Drive		

This schedule was developed based on the combined implementation, operation, and maintenance costs in 2023 dollars. This schedule can be changed according to the Town's priorities and scheduled maintenance activities.

A 10-year cost plan as listed in Table 8 has had annual cost adjusted to take into account the anticipated inflation rate over the 10-year program span. It should be noted that operating costs associated with running the program are cumulative every year, whereas capital costs are a one-time payment. Moreover, it was assumed that, once Traffic Control Measures (TCMs) have been set up on a given roadway, they will remain there. Those measures that are seasonal will be taken away before winter and then replaced the following spring.

Table 29: 10-Year Projected Annual Costs

Budget	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Capital	\$293,472	\$325,177	\$430,619	\$400,000	\$410,000	\$420,300	\$430,800	\$441,500	\$452,000	\$463,900
Operating	\$46,988	\$121,210	\$130,808	\$100,000	\$102,500	\$105,000	\$107,700	\$110,400	\$113,100	\$116,000
Cumulative Operating Budget (in equivalent year dollars)	\$46,988	\$169,607	\$305,503	\$414,668	\$529,609	\$650,497	\$777,712	\$911,443	\$1,051,886	\$1,199,443

Conclusion

The Town of Innisfil employed EXP to undertake a Traffic Calming project for their municipality. This project involved conducting Traffic Calming pilot studies at three separate locations within the Town, which were each successful in different ways and to different extents. Overall, the results of the Pilot Studies provide a great deal of local knowledge and experience that the Town has drawn on to complete this new policy and program and which it will continue to draw on moving forward.

The resulting products of this project included a new Traffic Calming Measures Design Guide, as well as a revised Town of Innisfil Traffic Calming Policy to be used for future requests and implementation strategies for TCM. This new Traffic Calming Policy gives the Town a mechanism for choosing from a wide range of potential Traffic Calming locations and measures. The project also included the creation of a 10-year Traffic Calming Strategy plan for the Town, which provides guidance on where and how TCM should be deployed within the Town with funding needs over the next ten years.

Overall, the Innisfil Traffic Calming Project was a successful endeavour, primarily a result of Town staff, public, and other stakeholder involvement. The Town now has a two-pronged approach for using TCM in the future, including a revised protocol for responding to requests from the public, as well as a new, more proactive plan for deploying TCM more effectively.

Appendix A: Best Practices and Emerging Technologies

17 March 2021
Project: (200150)

To

Yves Monereau, P.Eng., PE, PTOE, RSP
Senior Project Manager, Transportation

EXP

From

Gene Chartier, M.A.Sc., P.Eng., FITE
Vice President and Chief Development Officer

Andrew Steinsky, P.Eng.
Transportation Engineer

Paradigm Transportation Solutions Limited

RE: TOWN OF INNISFIL TRAFFIC CALMING STRATEGY – REVIEWS OF BEST PRACTICES AND EMERGING TECHNOLOGIES

This memorandum summarizes the findings of the review completed of traffic calming best practices and emerging technologies for the Town of Innisfil Traffic Calming Strategy.

Best Practices Review

The Project Team conducted an online search of traffic calming policies and guidelines published by Ontario municipalities to identify key and unique elements. The documents researched typically included criteria for justifying traffic calming installation, a toolkit of applicable measures, information pertaining to the public engagement process, and in certain cases, evaluation and monitoring provisions. Some documents also defined prioritization criteria to rank warranted locations for installation.

The following summarizes the commonalities and differences between the traffic calming policies and guidelines of the municipalities surrounding the Town of Innisfil in the Simcoe County area, and for municipalities in other parts of the province. The Town's existing policy is also summarized for comparison.

Municipalities within Simcoe County and Cities of Barrie and Orillia

Table 1 summarizes the key features of the published traffic calming policies and guidelines for the other lower-tier municipalities in Simcoe County and the cities of Barrie and Orillia.

Appendix A lists the typical/preferred traffic calming measures used in each jurisdiction.

All policies and guidelines researched focus the application of traffic calming measures on local and collector roadways primarily. Nearly all also outline typical public engagement practices including neighbourhood petitions, surveys, and public meetings. In most cases, a point system is used to prioritize locations for traffic calming plans, and many of the municipalities outline a methodology for removing measures. Limited information is provided

on the monitoring and evaluation of traffic calming installations. Some municipalities will undertake speed studies or new traffic counts after implementation for this purpose.

It is noted the Town of Bradford-West Gwillimbury traffic calming policy is limited to the installation of speed cushions.¹

Other Ontario Municipalities

Table 2 summarizes the key features of the published traffic calming policies and guidelines for select Ontario municipalities outside the Simcoe County area. These documents were reviewed to identify practices used outside the immediate vicinity with potential for application in the Town of Innisfil. The municipalities selected span a range of populations and land use settings (i.e., rural, urban, suburban), with most somewhat similar in size and context (i.e. part urban/part rural) as the Town and also experiencing growth pressures. **Appendix B** lists the typical/preferred traffic calming measures used in each jurisdiction. Most are generally adopted from the TAC *Canadian Guide to Traffic Calming*² (Guide).

All policies and guidelines researched feature an initial screening tool, with some including additional criteria such as collision history or percentage of cut-through traffic in the assessment. Like municipalities within the Simcoe County area, most use a point system to prioritize locations for traffic calming plans. The Town of Grimsby uses a multiple warrant system comprising seven criteria, in combination with a limited screening tool. Most also include evaluation and monitoring provisions, generally involving the completion of speed and traffic count studies between 6 and 18 months after installation. Criteria for the removal of traffic measures are provided in some policies and vary, with the City of Vaughan policy requiring installation for a minimum of five years before a traffic calming plan can be considered for removal.

Emerging Technologies

This section highlights emerging traffic calming measures used in other jurisdictions as identified in the TAC Guide and on-line references. The use of many of these measures is not common practice in Ontario today. As such, the provincial *Highway Traffic Act* and Ontario Traffic Manual (OTM) provide limited to no guidance on their application. While most would appear to pose no concern, further investigation may be required to confirm the legality of using some of the measures on Ontario roads.

TAC Canadian Guide to Traffic Calming

The TAC Guide identifies six emerging traffic calming technologies/measures for use in Canada. Guidance on their general application is provided below along with a photo. The Guide does not include design specifications for installation given their limited use by Canadian municipalities at present.

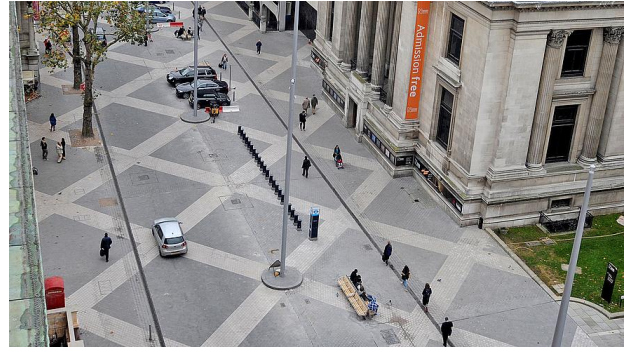
¹ The Town of Bradford-West Gwillimbury traffic calming policy was confirmed through a phone call with municipal staff on 23 February 2021.

² Transportation Association of Canada. *Canadian Guide to Traffic Calming*. February 2018.



Shared Spaces and Complete Streets

Shared spaces and complete streets are similar in their design intent but differ in application. While designing roads to accommodate all modes of travel beyond the motor vehicle is a fundamental premise of both approaches, the complete streets concept equally prioritizes all road users whereas the shared spaces philosophy places greater emphasis on cyclists and pedestrians.



Source: *Canadian Guide to Traffic Calming*

The TAC Guide describes shared spaces as “a design concept commonly used in Europe where the priority for users is shifted from vehicles towards cyclists and pedestrians, as they are free to cross anywhere. Often there are no pavement markings, traffic signals, signs, or barriers, which requires drivers to be more attentive. There may also be trees or street furniture in the roadway to act as deflections. This shared use roadway reduces vehicle speeds and encourages better public spaces for the community.”³ Within the Netherlands, shared spaces are known as *woonerf*, which translates to “*living street*”. In the United Kingdom, the concept is called a “*homes zone*”.

In the North American context, shared spaces are generally applicable on local and collector streets, with traffic volumes less than 15,000 vehicles per day, and/or in high pedestrian volume areas, including commercial areas. Advantages include a reduction in vehicle speeds and conflict points and an increase in pedestrian usage of the space. Disadvantages include a high implementation cost, substantial reconstruction of the roadway, and additional maintenance depending on surface materials.

As noted above, complete streets are typically designed to accommodate all users by dedicating space for each mode. This “space” can take the form of sidewalks for pedestrians and bike lanes for cyclists, for example. Traffic calming measures, such as curb extensions, may be included to reduce pedestrian crossing distances, particularly at intersections. “Road diets” are a common approach used to reconfigure a roadway and reallocate space to achieve complete streets objectives (for example, narrowing or eliminating general purpose travel lanes to install bike lanes).

³ Transportation Association of Canada. *Canadian Guide to Traffic Calming*. February 2018. p. 122



LED Pavement Markings

The TAC Guide indicates “LEDs can be used in pavement to create dynamic road marking. The linear strips of LEDs are coated in plastic and use induction power connections allowing them to be used in a variety of ways such as displaying an advisory speed limit for a curve. The use of LEDs is not limited to dark conditions since these active markings can be seen in daylight as well. Unlike pavement marking that displays only a fixed message, the LEDs can behave like a vehicle actuated signal, which is able to attract more attention from drivers.”⁴



Source: *Canadian Guide to Traffic Calming*

LED pavement markings are generally applicable on collector and arterial streets, in either urban or rural settings, regardless of traffic volumes. Advantages include no impacts to emergency vehicle response times or impact on roadway skid resistance. Disadvantages include potential damage from roadway maintenance vehicles (e.g., snow clearing trucks). Given their limited use to date and an absence of in-service studies, the durability of these markings remains unknown.

Optical Illusion Pavement Markings

The TAC Guide describes optical illusion pavement markings as “markings [that] use colours and shading to create an optical illusion in an attempt to influence drivers to reduce their speed.”⁵

Optical illusion pavement markings are generally applicable on urban and rural, local and collector streets with low speeds. Advantages include low implementation cost and no impact on emergency vehicles, snow plowing, and street sweeping. Disadvantages include reduced visibility (and effectiveness) from snow during winter months and the potential for driver confusion if surprised by the pavement markings. Optical illusion pavement markings require similar maintenance and upkeep as more traditional markings (e.g., edge lines, stop bars). The TAC Guide recommends their use in conjunction with other traffic calming measures.



Source: *Canadian Guide to Traffic Calming*

⁴ Transportation Association of Canada. *Canadian Guide to Traffic Calming*. February 2018. p. 124

⁵ Transportation Association of Canada. *Canadian Guide to Traffic Calming*. February 2018. p. 125



Rest-on-Red Signal Phasing

“The rest-on-red treatment involves programming an additional phase into signalized intersections where the red light is displayed on all approaches when there is no vehicular or pedestrian demand. The green light is only initiated when a vehicle or pedestrian activates the change either through advanced vehicular detection or pedestrian push button. The green change timing does not necessarily require vehicles to come to a complete stop. The purpose is to reduce vehicle speeds, and thereby, the severity of collisions.”⁶



Source: *Canadian Guide to Traffic Calming*

Rest on red signal phasing is generally applicable on collector and arterial streets, with a posted speed limit less than or equal to 50 km/h, in addition to localized intersections and signalized pedestrian crossings. Advantages include a reduction in vehicle speeds and conflict reductions of up to 45%. Disadvantages include increased vehicle delay, depending on the time of day in which the phasing is implemented.

The implementation of rest-on-red signal phasing requires modifications to the signal timing controller. Additional actuation infrastructure may also be necessary to ensure vehicles and pedestrians actuate the green/walk signal phase.

Sectional Control

The TAC Guide defines “Section Control” or “Point-to-Point Control” as “a new approach to automated speed enforcement [that] operates by calculating the average speed of a vehicle between two points (usually 2-5 km or longer) on a section of roadway. The system will identify a vehicle at the entrance of the enforcement section and again when exiting using license plate recognition technology to calculate the average speed. Vehicles that are considered to be travelling too fast are fined and issued a speeding ticket.”⁷



Source: *Canadian Guide to Traffic Calming*

Sectional control is applicable on all roadways but is more effective on expressways/freeways due to the infrequent nature of entrance and exit points. Advantages include a reduction in vehicle speed, an increase in vehicle speed compliance, and a reduction in fatal or serious injury collisions. Disadvantages include a high implementation cost, difficulties with

⁶ Transportation Association of Canada. *Canadian Guide to Traffic Calming*. February 2018. p. 126

⁷ Transportation Association of Canada. *Canadian Guide to Traffic Calming*. February 2018. p. 127



enforcement including the legality of collecting information of road users (including non-violators), and privacy concerns.

Variable Speed Limits

Variable speed limit signs are “dynamic or adjustable road signs displaying variable statutory speed limits. Using a system of traffic, pavement, and visibility sensors to monitor real-time conditions on the route, an algorithm based on traffic engineering studies determines, if legally acceptable, the appropriate speed limit. Variable speed limits can also be set manually by an operator and should be established based on a traffic engineering study.”⁸ The speed limits can vary by location/space (e.g., specific road segments or lanes) or time of day (e.g., during school hours or school pick-up/drop-off periods).



Source: *Canadian Guide to Traffic Calming*

Variable speed limits are applicable across all roadways, all traffic volumes, urban and rural roadways, and in high pedestrian locations (e.g., school zones). Advantages include reduced vehicle operating speeds (both mean and variance), improved travel times through smoother traffic flow, and reduced collisions (both primary and secondary crashes during adverse weather conditions and congestion). Disadvantages include a medium to high installation cost, ongoing maintenance and operational costs, and the possible need for enforcement to encourage and promote compliance (if users do not believe the system is legitimate, compliance rates will be low).

Variable speed limits operate like the School Zone Maximum Speed When Flashing sign described in OTM Book 5 – Regulatory Signs.⁹ By using the prescribed signs and flashing beacons (Rb- A and Rb-106A), road authorities can establish variable speed limits on roads in school zones. A municipal by-law is required to designate a school zone and specify the times the signs are in effect.

“Smart” Traffic Calming Measures

The Project Team conducted an on-line literature search to identify other potential emerging traffic calming measures outside the list provided in the TAC Guide. The review focused primarily on countries known for more active/advanced road safety/traffic calming programs, including the United Kingdom and other European nations, Australia, and New Zealand.

The research found jurisdictions in other parts of the world are beginning to focus on the use of “smart” traffic calming measures. Unlike the primarily “static” measures listed in the TAC

⁸ Transportation Association of Canada. *Canadian Guide to Traffic Calming*. February 2018. p. 129

⁹ Ministry of Transportation, Ontario. *Ontario Traffic Manual Book 5: Regulatory Signs*. Queen’s Printer of Ontario. March 2000.

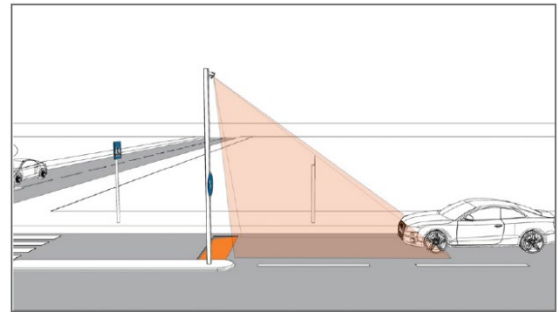


Guide, and commonly used by Ontario municipalities, these installations respond “dynamically” to changes in traffic volumes, weather conditions, and/or time of day.

Variable speed limits represent the current extent of “intelligent” traffic calming measures presented in the TAC Guide, enabling different speed limits to be set at different times of the day. The following subsections highlight other technologies being used to enhance existing traffic calming installations or provide additional options. These “smart” measures are capable of interpreting driver and/or pedestrian behaviour and creating a response depending on circumstances and context. It is noted many of these measures have not been applied in Ontario to date.

Actibump

The Actibump system is a modification of the existing speed hump, designed to activate only when vehicles are observed travelling faster than a prescribed speed threshold. When a speeding vehicle is observed by the radar device within the unit, the system activates a “hatch” in the roadway surface to lower the profile by a few centimetres. For non-speeders, the hatch remains level with the roadway surface. Transponders are available to permit emergency vehicles to pass the Actibump system at higher speeds without activating the “hatch”.



Source: EDEVA Actibump Technical Brochure

The system is currently installed in several cities in Sweden. A study completed in 2016 at one installation in Linköping, Sweden noted a 24% reduction in average vehicle speeds and a 10% increase in the number of vehicles yielding to vulnerable road users.¹⁰ Advantages include the ability to accommodate emergency vehicles, lower general traffic speeds, and operate during winter weather without impacting snow clearing operations. Disadvantages include a higher installation and maintenance cost as opposed to less intrusive traffic calming measures.

Smart Pedestrian Crossings

Smart pedestrian crossings include a range of technologies responding to pedestrian and vehicle actuation. These crossings can include LED pavement markings at curb cuts to signify pedestrian right-of-way or light actuated signs and poles to warn drivers of a pedestrian crossing the street.

The illuminated signs are similar technology to Level 1 Type A and Level 2 Type B and C Pedestrian Crossover (PXO) installations in Ontario, which



Source: Smart Pedestrian Crossing at Villanueva de la Serena (STEPVIAL)

¹⁰ Börefelt, Alexander et. al. *Evaluation of Actibump in Linköping, effect on speed and yielding behaviour*. 9 July 2016



include flashing beacons. The difference lies in how the device is actuated. Current PXO devices require pedestrian actuation to activate, whereas these newer technologies rely on detector loops and cameras to determine when a person is crossing the street. Once actuated, the signs and poles illuminate to warn drivers of the pedestrian crossing activity.

There are existing installations of these technologies in Finland and Estonia, but limited research is available on their advantages and disadvantages to date.

Automated Speed Enforcement

Bill 65 (*Safer School Zones Act*) amended the *Highway Traffic Act* in 2017 to enable the installation of Automated Speed Enforcement (ASE) devices in school zones and Community Safety Zones (CSZs) in Ontario. The technology uses a camera and speed measurement device to enforce speed limits in school zones.¹¹

Several municipalities in the province (primarily upper or single-tier jurisdictions in the Greater Toronto and Hamilton Area) have initiated ASE programs in the past year. While safety benefits are evident and a key motivator for deployment, financial implications (i.e., implementation costs, processing fees, fine revenue) have tended to be a primary consideration for jurisdictions contemplating ASE, especially for lower-tier municipalities.

Appendix C contains a report presented to Town of Whitby Council in December 2020 summarizing key aspects of ASE. **Appendix D** contains a report presented to Town of Bradford West Gwillimbury Traffic Committee in October 2020 summarizing key aspects of ASE in the Town.

Traffic Calming Measures in *Canadian Guide to Traffic Calming*

Appendix E provides a high-level summary of all traffic calming measures listed in the Guide, including the emerging technologies discussed above. The summary provides guidance on location applicability, and benefits and disbenefits of each measure across a variety of characteristics (e.g., speed reduction, conflict reduction, impacts on parking, etc.).

The current (2018) edition of the Guide features a broader range of traffic calming measures than the original (1998) version and provides contemporary guidance in their application and design. The updated Guide also contemplates the use of traffic calming measures on arterial roads unlike the previous edition.

¹¹ Spotlight on ASE. <https://www.aseontario.com/>



TABLE 1: TRAFFIC CALMING POLICIES AND GUIDELINES OF SIMCOE COUNTY MUNICIPALITIES AND CITIES OF BARRIE AND ORILLIA

Municipality (Last Update)	Initial Screening	Neighbourhood Engagement	Data Assessment/ Technical Process	Evaluation	Removal
<p>Innisfil (March 2018) (pop. 36,566)</p>	<ul style="list-style-type: none"> ▶ Road grade less than 5% ▶ Minimum block length of 120 metres ▶ Roadway not used by fixed-route transit ▶ 85th percentile vehicle speed greater than 15 km/h above speed limit ▶ Volume must be greater than 400 vehicles per day ▶ Must be a local road, minor collector roadway, or downtown commercial street ▶ Limited impacts to Emergency Services (determined through consultation) 	<ul style="list-style-type: none"> ▶ Not Specified 	<p>Point System</p> <ul style="list-style-type: none"> ▶ Highest points = highest priority ▶ Collector Road (52 points) <p>Criteria</p> <ul style="list-style-type: none"> ▶ Speed ▶ Volume ▶ Collision History ▶ Pedestrian Generators ▶ On-Road Cycling Facilities 	<ul style="list-style-type: none"> ▶ Town staff to monitor installation of temporary and permanent measures for a period of six months to one year after implementation ▶ Information report to be published by the Traffic Safety Advisory Committee (TSAC) 	<ul style="list-style-type: none"> ▶ Removal may be requested by a citizen, agency, or stakeholder(s). ▶ May be removed if 60% of study area residents, agencies, businesses and property owners support removal. Minimum response rate not defined. ▶ If removed, must wait three years to request a new traffic calming study.
<p>Bradford West Gwillimbury (Sept. 2015) (pop. 35,300)</p>	<ul style="list-style-type: none"> ▶ See Warrant 1 of Technical Process ▶ Policy limited to the installation of speed cushions 	<ul style="list-style-type: none"> ▶ Petition from residents (60% of affected homes must support speed cushions). Number of affected homes determined by Town staff. 	<p>Three Warrant System</p> <ul style="list-style-type: none"> ▶ Warrant 1: Petition ▶ Warrant 2: Safety Requirements (Presence of Sidewalks, Road Grade, Emergency Response Route, Minimal Impacts to Non-Motorized Uses) ▶ Warrant 3: Technical Requirements (Road Classification, Minimum Speed, 85th Percentile Speed, Traffic Volumes, Maximum Block Length) <p>Warrants 1, 2, and 3 must be met for Speed Cushion installation.</p>	<ul style="list-style-type: none"> ▶ Not Specified 	<ul style="list-style-type: none"> ▶ Not Specified



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Municipality (Last Update)	Initial Screening	Neighbourhood Engagement	Data Assessment/ Technical Process	Evaluation	Removal
<p>Clearview (July 2019) (pop. 14,100)</p>	<ul style="list-style-type: none"> ▶ Must be a local or collector road under Township jurisdiction ▶ Minimum length of 150 metres 	<ul style="list-style-type: none"> ▶ Neighbourhood Petition (after Initial Screening and Data Assessment) (minimum 51% support from households with direct frontage for pursuing a Traffic Calming Plan (TCP)). Petition occurs only if the location meets the point threshold. ▶ Neighbourhood Survey (after development of TCP) (minimum 25% response rate, minimum 60% in support of proposed Traffic Calming Plan Design) ▶ Public Meeting (optional). Need determined based on comments/opinions provided in the Neighbourhood Petition and Neighbourhood Survey. 	<p>Point System (maximum 115 points)</p> <ul style="list-style-type: none"> ▶ Local Road (min. 35 points) ▶ Collector Road (min. 52 points) <p>Criteria</p> <ul style="list-style-type: none"> ▶ Speed ▶ Volume ▶ Short Cutting Traffic ▶ Collision History ▶ Sidewalks ▶ Pedestrian Generators ▶ Sight Lines ▶ Road Allowance Limitations <p>Input from Township agencies (e.g., emergency services, transit services)</p> <p>Neighbourhood consultation via comments provided in the petition.</p>	<ul style="list-style-type: none"> ▶ If a location fails to meet the minimum point threshold, or the Neighbourhood Petition and/or Neighbourhood Survey do not indicate support, residents will be notified and the investigation for traffic calming discontinued. Staff may continue to address resident concerns through more traditional mitigation measures (e.g., enforcement, radar speed boards, signage). Council can overrule the decision to discontinue the study are direct moving forward with a traffic calming measure or study ▶ New traffic volume and speed data collected no later than three months after installation 	<ul style="list-style-type: none"> ▶ Traffic calming measures may be removed at the request of residents provided that more than the level of support exists to remove them as was measured for installation (i.e., minimum 25% response rate, with over 60% of respondents supporting removal). Survey to be delivered to same residents as the Neighbourhood Survey. Traffic calming must be installed for a minimum of three months before considering removal. ▶ Request to remove one device, may result in all devices being removed ▶ If removed, must wait two years to request new plan

TABLE 1: TRAFFIC CALMING POLICIES AND GUIDELINES OF SIMCOE COUNTY MUNICIPALITIES AND CITIES OF BARRIE AND ORILLIA

Municipality (Last Update)	Initial Screening	Neighbourhood Engagement	Data Assessment/ Technical Process	Evaluation	Removal
Essa (Sept. 2018) (pop. 21,000)	<ul style="list-style-type: none"> ▶ Must be a local or collector road under Township jurisdiction ▶ Minimum length of 150 metres 	<ul style="list-style-type: none"> ▶ Neighbourhood Petition (after Initial Screening and Data Assessment) (minimum 51% support from households with direct frontage for pursuing development of a Traffic Calming Plan). Petition occurs only if the location meets the point threshold ▶ Neighbourhood Survey (after development of TCP) (minimum 25% response rate, minimum 60% in support of proposed Traffic Calming Plan Design) ▶ Public Meeting (optional). Need determined based on comments/opinions provided in the Neighbourhood Petition and Neighbourhood Survey 	<p>Point System (maximum 115 points)</p> <ul style="list-style-type: none"> ▶ Local Road (35 points) ▶ Collector Road (52 points) <p>Criteria</p> <ul style="list-style-type: none"> ▶ Speed ▶ Volume ▶ Short Cutting Traffic ▶ Collision History ▶ Sidewalks ▶ Pedestrian Generators ▶ Sight Lines ▶ Road Allowance Limitations <p>Input from Township agencies (e.g., emergency services, transit services)</p>	<ul style="list-style-type: none"> ▶ If a location fails to meet the minimum point threshold, or the Neighbourhood Petition and/or Neighbourhood Survey do not indicate support, residents will be notified and the investigation for traffic calming discontinued. Staff may continue to address resident concerns through more traditional mitigation measures (e.g., enforcement, radar speed boards, signage). Council can overrule the decision to discontinue the study and direct moving forward with a traffic calming measure or study. ▶ New traffic volume and speed data collected no later than three months after installation 	<ul style="list-style-type: none"> ▶ Traffic calming measures may be removed at the request of residents provided that more than the level of support exists to remove them as was measured for installation (i.e., minimum 25% response rate, with over 60% of respondents supporting removal). Survey to be delivered to same residents as the Neighbourhood Survey. Traffic calming must be installed for a minimum of three months before considering removal. ▶ Request to remove one device, may result in all devices being removed ▶ If removed, must wait two years to request new plan

TABLE 1: TRAFFIC CALMING POLICIES AND GUIDELINES OF SIMCOE COUNTY MUNICIPALITIES AND CITIES OF BARRIE AND ORILLIA

Municipality (Last Update)	Initial Screening	Neighbourhood Engagement	Data Assessment/ Technical Process	Evaluation	Removal
Springwater (Feb. 2020) (pop. 19,100)	<ul style="list-style-type: none"> ▶ Must be a local or collector road under Township jurisdiction ▶ Minimum length of 150 metres ▶ Posted speed limit less than 50 km/h 	<ul style="list-style-type: none"> ▶ Neighbourhood Petition (after Initial Screening) (minimum 60% in support from households with direct frontage for pursuing development of a Traffic Calming Plan) ▶ Community Support Survey (after development of TCP) (minimum 25% response rate, minimum 60% in support of proposed Traffic Calming Plan Design) 	<p>Point System (maximum 110 points)</p> <ul style="list-style-type: none"> ▶ Local Road (min. 35 points) ▶ Collector Road (min. 52 points) <p>Criteria</p> <ul style="list-style-type: none"> ▶ Speed ▶ High Speed ▶ Volume ▶ Short Cutting Traffic ▶ Collision History ▶ Sidewalks ▶ Pedestrian Generators <p>Input from Township agencies (e.g., emergency services, transit services)</p>	<ul style="list-style-type: none"> ▶ If the Neighbourhood Petition does not indicate minimum support (60%), residents will be notified, and the investigation terminated ▶ If the location fails to meet the minimum point threshold, residents will be notified, and the investigation terminated. Staff may continue to address resident concerns through more traditional mitigation measures (e.g., enforcement, radar speed boards, signage). ▶ If the Community Support Survey does not yield minimum support for the proposed Traffic Calming Plan Design, the investigation will be terminated, and residents notified ▶ Post installation evaluation not specified 	<ul style="list-style-type: none"> ▶ Traffic calming measures may be removed at the request of residents provided that at least the same level of support exists to remove them as was measured for installation (i.e., minimum 25% response rate, with over 60% of respondents supporting removal). Survey to be delivered to same residents as the Community Support Survey. Traffic calming must be installed for a minimum of three months before considering removal. ▶ Request to remove one device, may result in all devices being removed ▶ If removed, must wait three years to request new plan

TABLE 1: TRAFFIC CALMING POLICIES AND GUIDELINES OF SIMCOE COUNTY MUNICIPALITIES AND CITIES OF BARRIE AND ORILLIA

Municipality (Last Update)	Initial Screening	Neighbourhood Engagement	Data Assessment/ Technical Process	Evaluation	Removal
Wasaga Beach (No Date) (pop. 20,700)	<ul style="list-style-type: none"> ▶ Must be a local or collector road under Township jurisdiction ▶ Minimum length of 150 metres 	<ul style="list-style-type: none"> ▶ Neighbourhood Petition (after Initial Screening and Data Assessment)(minimum 51% support from households with direct frontage for pursuing development of a Traffic Calming Plan). Petition occurs only if the location meets the point threshold. ▶ Neighbourhood Survey (after development of a TCP) (minimum 25% response rate, minimum 60% in support of proposed Traffic Calming Plan Design) ▶ Public Meeting (optional). Need determined based on comments/ opinions provided in the Neighbourhood Petition and Neighbourhood Survey. 	<p>Point System (max. 110 points)</p> <ul style="list-style-type: none"> ▶ Local Road (min. 35 points) ▶ Collector Road (min. 52 points) <p>Criteria</p> <ul style="list-style-type: none"> ▶ Speed ▶ High Speed ▶ Volume ▶ Short Cutting Traffic ▶ Collision History ▶ Sidewalks ▶ Pedestrian Generators <p>Input from Township agencies (e.g., emergency services, transit services)</p>	<ul style="list-style-type: none"> ▶ If a location fails to meet the minimum point threshold, or the Neighbourhood Petition and/or Neighbourhood Survey does not indicate support, residents will be notified and the investigation for traffic calming will discontinue. Staff may continue to address resident concerns through more traditional mitigation measures (e.g., enforcement, radar speed boards, signage). Council can overrule the decision to discontinue the study and direct moving forward with a traffic calming measure or study. ▶ New traffic volume and speed data collected no later than three months after installation 	<ul style="list-style-type: none"> ▶ Traffic calming measures may be removed at the request of residents provided that more than the level of support exists to remove them as was measured for installation (i.e., minimum 25% response rate, with over 60% of respondents supporting removal). Survey to be delivered to same residents as the Neighbourhood Survey. Traffic calming must be installed for a minimum of three months before considering removal. ▶ Request to remove one device, may result in all devices being removed ▶ If removed, must wait two years to request new plan
Barrie (Jan. 2011) (pop. 141,400)	<ul style="list-style-type: none"> ▶ Road Grade <5% ▶ Street Length > 120 metres ▶ Sidewalks on at least one side of street ▶ 85th percentile speed > 10 km/h above speed limit ▶ AADT > 900 vehicles ▶ Not on transit route 	<ul style="list-style-type: none"> ▶ Not Specified 	<p>Point System</p> <ul style="list-style-type: none"> ▶ Highest points = highest priority <p>Criteria</p> <ul style="list-style-type: none"> ▶ Pedestrian Generators ▶ Speed ▶ Collision History ▶ AADT <p>Pre-Screening Criteria determines whether traffic calming measures are permanent or temporary.</p> <p>Temporary measures include speed cushions and radar speed boards.</p>	<ul style="list-style-type: none"> ▶ Not Specified 	<ul style="list-style-type: none"> ▶ Not Specified



TABLE 1: TRAFFIC CALMING POLICIES AND GUIDELINES OF SIMCOE COUNTY MUNICIPALITIES AND CITIES OF BARRIE AND ORILLIA

Municipality (Last Update)	Initial Screening	Neighbourhood Engagement	Data Assessment/ Technical Process	Evaluation	Removal
Orillia (No Date) (pop. 31,100)	<ul style="list-style-type: none"> ▶ Must be a residential local or collector road ▶ Posted speed not greater than 50 km/h ▶ Minimum length of 150 metres ▶ AADT > 500 vehicles 	<ul style="list-style-type: none"> ▶ Petition (after Initial Screening) (>51% of households with direct frontage must support pursuing investigation) ▶ Public Meeting (after development of a TCP) (receive comments on the proposed Traffic Calming Plan) ▶ Community Support Survey (after development of a TCP, and Public Meeting) (minimum 25% response, minimum 60% support Plan) 	<p>Point System</p> <ul style="list-style-type: none"> ▶ Local Road (min. 35 points) ▶ Collector Road (min. 52 points) <p>Criteria</p> <ul style="list-style-type: none"> ▶ Speed ▶ Volume ▶ Traffic Generators ▶ Collision History ▶ Sidewalks ▶ Pedestrian Generators <p>Input from Fire, Transit, Police, etc. and Resident Input at a Public Meeting</p>	<ul style="list-style-type: none"> ▶ If the Petition does not indicate minimum support (>51%), residents will be notified, and the investigation terminated. Meeting the required support threshold will trigger a traffic calming investigation. ▶ If the traffic calming investigation indicates the location does not meet the minimum point thresholds, residents will be notified, and the investigation terminated. The location will not be eligible for re-evaluation for a period of three years after notification. Staff will continue to address resident concerns by means of more traditional mitigating measures (e.g., signage, enforcement, radar speed signs). ▶ If the Community Support Survey does not yield minimum support for the proposed Traffic Calming Plan Design, the investigation will be terminated, and residents notified ▶ Speed studies conducted four to six months after implementation 	<ul style="list-style-type: none"> ▶ Traffic calming measures may be removed at the request of residents provided that at least the same level of support exists to remove them as was measured for installation (i.e., minimum 25% response rate, with over 60% of respondents supporting removal). Survey to be delivered to same residents as the Community Support Survey. Traffic calming must be installed for a minimum of two years before considering removal. ▶ Request to remove one device, may result in all devices being removed ▶ If removed, must wait three years to request new plan

TABLE 2: TRAFFIC CALMING POLICIES AND GUIDELINES OF OTHER ONTARIO MUNICIPALITIES

Municipality (Last Update)	Initial Screening	Neighbourhood Engagement	Data Assessment/ Technical Process	Evaluation	Removal
Vaughan (Jun. 2010) (pop. 323,000)	<ul style="list-style-type: none"> ▶ Traffic calming not considered on collectors or arterials with a ROW > 26 metres ▶ Additional criteria depending on traffic calming measure to be installed 	<ul style="list-style-type: none"> ▶ Survey (75% response rate, 75% in support of pursuing study), number of affected homes determined by Town staff ▶ Community Meeting (after development of the TCP) (minimum 75% support through vote at meeting) 	<p>Warrants</p> <ul style="list-style-type: none"> ▶ Speed Humps/Raised Crosswalks ▶ Medians, Curb Extensions, Chicanes ▶ Raised Intersections, Roundabouts and/or Traffic Circles <p>Criteria</p> <ul style="list-style-type: none"> ▶ 85th Percentile Speed ▶ Speed Limit ▶ Traffic Volume ▶ Street Length ▶ Collision History ▶ Volume ▶ Traffic Generators ▶ Collision History ▶ Sidewalks ▶ Pedestrian Generators <p>Input from Fire, Transit, Police, etc. and Resident Input at a Public Meeting</p>	<ul style="list-style-type: none"> ▶ Engineering Services Department to complete evaluation between one to two years after installation. 	<ul style="list-style-type: none"> ▶ Cannot be removed for at least five years unless a health or safety issue is presented.
Caledon (May 2020) (pop. 66,500)	<ul style="list-style-type: none"> ▶ Road Grade less than 8% ▶ Road Length greater than 110 metres ▶ AADT greater than 750 vehicles ▶ Greater than six collisions over previous three years ▶ 85th percentile speed greater than 15 km/h above speed limit 	<ul style="list-style-type: none"> ▶ Not Specified (consultation completed during development of Traffic Calming Policy) 	<p>Point System (maximum 100 points)</p> <ul style="list-style-type: none"> ▶ Highest points = highest priority <p>Criteria</p> <ul style="list-style-type: none"> ▶ 85th Percentile Speeds ▶ Volumes ▶ Collisions ▶ Pedestrian Generators ▶ Bike Facilities or Routes ▶ Adjacent Land Uses ▶ Driveway Density (rural locations only) 	<ul style="list-style-type: none"> ▶ Town staff to complete speed study six months after installation 	<ul style="list-style-type: none"> ▶ Not Specified

TABLE 2: TRAFFIC CALMING POLICIES AND GUIDELINES OF OTHER ONTARIO MUNICIPALITIES

Municipality (Last Update)	Initial Screening	Neighbourhood Engagement	Data Assessment/ Technical Process	Evaluation	Removal
Halton Hills (2019) (pop. 61,100)	<ul style="list-style-type: none"> ▶ Must be a local or collector road under Town jurisdiction ▶ Minimum 30% cut-through traffic ▶ AADT greater than 1500 vehicles ▶ Operating speed greater than: <ul style="list-style-type: none"> • 10 km/h above posted speed limit on local and collectors with a school, playground or retirement centre; or • 15 km/h above posted speed limit on all other local and collectors (40 km/h or 50 km/h); or • 20 km/h above posted speed limit on all other local and collectors posted at 60 km/h 	<ul style="list-style-type: none"> ▶ Public Information Centre to receive input on Traffic Calming Plan design 	<p>Point System (maximum 100 points)</p> <ul style="list-style-type: none"> ▶ Highest points = highest priority <p>Criteria</p> <ul style="list-style-type: none"> ▶ Speed ▶ Volume ▶ Collisions ▶ Pedestrian Generators <p>The Traffic Calming Plan relies on non-intrusive traffic calming measures (community road watch program, radar message boards, enforcement, signage, pavement markings, education) for a period of six months.</p> <p>If the non-intrusive measures produce the desired results, the process is concluded.</p>	<ul style="list-style-type: none"> ▶ If the location does not meet Initial Screening criteria, the investigation will be terminated, and residents advised. ▶ Monitored after first year of installation 	Not Specified



TABLE 2: TRAFFIC CALMING POLICIES AND GUIDELINES OF OTHER ONTARIO MUNICIPALITIES

Municipality (Last Update)	Initial Screening	Neighbourhood Engagement	Data Assessment/ Technical Process	Evaluation	Removal
Milton (Mar. 2011) (pop. 110,100)	<ul style="list-style-type: none"> ▶ Must be a local or collector roadway under Town jurisdiction ▶ Posted speed limit not greater than 50 km/h ▶ Minimum segment length of 150 metres ▶ Minimum AADT of 500 vehicles 	<ul style="list-style-type: none"> ▶ Petition (after Initial Screening) (minimum 51% of households with direct frontage must support pursuing investigation) ▶ Public Open House (after development of the TCP) ▶ Survey (after development of the TCP, and Public Meeting) (minimum 25% response rate, minimum 60% support the proposed Traffic Calming Plan) 	<p>Point System</p> <ul style="list-style-type: none"> ▶ Local Road (35 points) ▶ Collector Road (52 points) <p>Criteria</p> <ul style="list-style-type: none"> ▶ Speed ▶ Volume ▶ Short Cutting Traffic ▶ Collisions ▶ Sidewalks ▶ Pedestrian Generators <p>Input from Emergency, Transit, and Maintenance Services</p>	<ul style="list-style-type: none"> ▶ If the Petition does not indicate minimum support (>51%), residents will be notified, and the investigation terminated. Meeting the required support threshold will trigger a traffic calming investigation. ▶ If the traffic calming investigation indicates the location does not meet the minimum point thresholds, residents will be notified, and the investigation terminated. The location will not be eligible for re-evaluation for a period of three years after notification. Staff will continue to address resident concerns by means of more traditional mitigating measures (e.g., signage, enforcement, radar speed signs). ▶ If the Community Support Survey does not yield minimum support for the proposed Traffic Calming Plan Design, the investigation will be terminated, and residents notified ▶ Conduct speed study four to six months after installation 	<ul style="list-style-type: none"> ▶ May be removed after two years if 60% of responses (minimum 25% response rate) support removal ▶ Request to remove one device, may result in all devices being removed ▶ If removed, must wait three years to request new plan



TABLE 2: TRAFFIC CALMING POLICIES AND GUIDELINES OF OTHER ONTARIO MUNICIPALITIES

Municipality (Last Update)	Initial Screening	Neighbourhood Engagement	Data Assessment/ Technical Process	Evaluation	Removal
Grimsby (Aug. 2016) (pop. 27,300)	<ul style="list-style-type: none"> ▶ Must be a local or collector street under Town jurisdiction ▶ Minimum segment length of 250 metres ▶ Road grade less than 8% ▶ No previous request within previous five years 	<ul style="list-style-type: none"> ▶ Not Specified (Development of Traffic Calming Plan to be outsourced to traffic consultant) 	<p>Eight Warrants</p> <ul style="list-style-type: none"> ▶ Warrant 1: 85th percentile speed > 9 km/h above speed limit ▶ Warrant 2: > 5% of vehicles travel more than 15 km/h above speed limit ▶ Warrant 3: AADT > 1,500 vehicles (local street) or 4,500 (collector street) ▶ Warrant 4: Short cutting traffic is > 15% of total traffic (local street) or 40% of total traffic (collector street) ▶ Warrant 5: Pedestrian or cycling generators exist on the street ▶ Warrant 6: No sidewalk on at least one side of the street ▶ Warrant 7: Police reported more than 2.2 traffic collision per year based on previous three years ▶ Warrant 8: 85th percentile speed > 15 km/h above speed limit <p>A Traffic Calming Plan will be developed if:</p> <ul style="list-style-type: none"> a) A minimum of four warrants (Warrants 1 through 7) are met; or b) Warrant 8 is met, regardless of the results of Warrants 1 through 7. 	<ul style="list-style-type: none"> ▶ Not Specified (Development of Traffic Calming Plan to be outsourced to traffic consultant) 	<ul style="list-style-type: none"> ▶ Not Specified (Development of Traffic Calming Plan to be outsourced to traffic consultant)



Appendix A

Typical/Preferred Traffic Calming Measures of Simcoe County Municipalities and Cities of Barrie and Orillia



Traffic Calming Measure	MUNICIPALITY						
	Orillia	Barrie	Bradford West Gwillimbury	Wasaga Beach	Clearview	Essa	Springwater
VERTICAL DEFLECTION							
Raised Crosswalk	x	x	x	x	x	x	x
Raised Intersection	x	✓	x	x	x	x	x
Speed Cushion	✓	✓	✓	x	x	x	x
Speed Hump/Table	x	x	x	✓	✓	✓	✓
HORIZONTAL DEFLECTION							
One-Lane Chicane	✓	x	x	x	x	x	x
Two-Lane Chicane	x	x	x	x	x	x	x
Curb Radius Reduction	✓	✓	x	x	x	x	x
Lateral Shift	x	x	x	x	x	x	x
Speed Kidney	x	x	x	x	x	x	x
Traffic Circle/Traffic Button/Mini Roundabout	✓	✓	x	✓	✓	✓	x
ROADWAY NARROWING							
Curb Extension	✓	✓	x	✓	✓	✓	x
Lane Narrowing	x	x	x	✓	✓	✓	✓
On-Street Parking	✓	x	x	x	x	x	x
Raised Median Island	✓	✓	x	✓	✓	✓	✓
Road Diet	✓	x	x	x	x	x	x
Vertical Centreline Treatment	x	x	x	x	x	x	x
SURFACE TREATMENT							
Sidewalk Extension/Textured Crosswalk	✓	✓	x	x	x	x	x
Textured Pavement	x	x	x	x	x	x	x
Transverse Rumble Strips	x	x	x	x	x	x	x
PAVEMENT MARKINGS							
Converging Chevrons	x	x	x	x	x	x	x
Dragon Teeth	x	x	x	x	x	x	x
Full Length Transverse Bars	x	x	x	x	x	x	x
On-Road 'Sign' Pavement Markings	x	x	x	x	x	x	x
Peripheral Transverse Bars	x	x	x	x	x	x	x
ACCESS RESTRICTION							
Directional Closure	✓	x	x	x	x	x	x
Diverter	✓	x	x	x	x	x	x
Full Closure	✓	x	x	x	x	x	x
Intersection Channelization	✓	x	x	x	x	x	x
Raised Median Through Intersection	✓	x	x	x	x	x	x
RIRO Island	✓	x	x	x	x	x	x
GATEWAYS							
Gateways	x	x	x	x	x	x	x
ENFORCEMENT							
Aircraft/Drone Radar Enforcement	x	x	x	x	x	x	x
Fixed Speed Enforcement	x	x	x	✓	✓	✓	✓
Mobile Speed Enforcement	x	x	x	x	x	x	x
"Speed Watch" Program	x	x	x	x	x	x	x
EDUCATION							
Active and Safe Routes to School Program	x	x	x	x	x	x	x
Pace Car Program	x	x	x	x	x	x	x
Speed Display Devices	x	✓	x	✓	✓	✓	✓
Targeted Education Campaign	x	x	x	x	x	x	✓
Vehicle Activated Signs	x	x	x	x	x	x	x
SHARED SPACE							
Shared Space	x	x	x	x	x	x	x
OTHER							
Traffic Calmed Neighbourhood Sign	✓	x	x	x	x	x	x
Community Safety Zones	x	x	x	✓	✓	✓	x
Stop Signs	x	x	x	x	x	x	✓
Maintenance and Signage	x	x	x	x	x	x	✓

Appendix B

Typical/Preferred Traffic Calming Measures of Other Ontario Municipalities



Traffic Calming Measure	MUNICIPALITY			
	Vaughan	Halton Hills	Milton	Caledon
VERTICAL DEFLECTION				
Raised Crosswalk	✓	✓	✗	✓
Raised Intersection	✓	✓	✗	✗
Speed Cushion	✗	✓	✓	✓
Speed Hump/Table	✓	✓	✗	✓
HORIZONTAL DEFLECTION				
One-Lane Chicane	✓	✓	✓	✓
Two-Lane Chicane	✓	✓	✗	✓
Curb Radius Reduction	✗	✓	✓	✓
Lateral Shift	✗	✓	✗	✗
Speed Kidney	✗	✗	✗	✗
Traffic Circle/Traffic Button/Mini Roundabout	✓	✓	✓	✗
ROADWAY NARROWING				
Curb Extension	✓	✓	✓	✓
Lane Narrowing	✓	✓	✗	✓
On-Street Parking	✗	✗	✓	✗
Raised Median Island	✓	✓	✓	✓
Road Diet	✗	✗	✓	✗
Vertical Centreline Treatment	✓	✗	✗	✓
SURFACE TREATMENT				
Sidewalk Extension/Textured Crosswalk	✗	✗	✓	✓
Textured Pavement	✗	✗	✗	✓
Transverse Rumble Strips	✗	✗	✗	✗
PAVEMENT MARKINGS				
Converging Chevrons	✗	✗	✗	✓
Dragon Teeth	✗	✗	✗	✓
Full Length Transverse Bars	✗	✗	✗	✓
On-Road 'Sign' Pavement Markings	✗	✗	✗	✓
Peripheral Transverse Bars	✗	✗	✗	✓
ACCESS RESTRICTION				
Directional Closure	✗	✓	✓	✗
Diverter	✗	✓	✓	✗
Full Closure	✗	✓	✓	✗
Intersection Channelization	✗	✗	✓	✗
Raised Median Through Intersection	✗	✓	✓	✗
RIRO Island	✗	✗	✓	✗
GATEWAYS				
Gateways	✗	✗	✗	✗
ENFORCEMENT				
Aircraft/Drone Radar Enforcement	✗	✗	✗	✗
Fixed Speed Enforcement	✗	✗	✗	✓
Mobile Speed Enforcement	✗	✗	✗	✗
"Speed Watch" Program	✗	✗	✗	✓
EDUCATION				
Active and Safe Routes to School Program	✗	✗	✗	✗
Pace Car Program	✗	✗	✗	✗
Speed Display Devices	✗	✗	✗	✓
Targeted Education Campaign	✗	✗	✗	✗
Vehicle Activated Signs	✗	✗	✗	✓
SHARED SPACE				
Shared Space	✗	✗	✗	✗
OTHER				
Traffic Calmed Neighbourhood Sign	✗	✗	✓	✗
Community Safety Zones	✗	✗	✗	✓
Stop Signs	✗	✗	✗	✓
Signage	✓	✗	✗	✓

Appendix C

Town of Whitby Staff Report – Automated Speed Enforcement (ASE) Program



Town of Whitby Staff Report

whitby.civicweb.net



Report Title: Automated Speed Enforcement (ASE) Program

Report to: Committee of the Whole

Date of meeting: December 7, 2020

Report Number: PW 27-20

Department(s) Responsible:

Public Works Department

Submitted by:

Suzanne Beale, Commissioner, Public Works

Acknowledged by M. Gaskell, Chief Administrative Officer

For additional information, contact:

Tara Painchaud, Senior Manager,
Transportation Services, x4937

Dhaval Pandya, Program Manager,
Transportation Services x4945

1. Recommendation:

1. That Report PW 27-20 regarding Automated Speed Enforcement (ASE) be received for information.
2. That Council direct the Clerk to remove MD-5142 from the New and Unfinished Business (NUB) listing.

2. Highlights:

- The Highway Traffic Act (HTA) amendments that enable ASE deployments permit the road authority to implement Automated Speed Enforcement (ASE) on roadways within their jurisdiction.
- Based on the current Highway Traffic Act regulation (Section 128.5 of the HTA), the Town must initiate a School Zone By-law to implement an Automated Speed Enforcement Program in school zones.
- Community Safety Zones should be implemented on roads in the vicinity of community based facilities such as schools, community centres, parks, hospitals, retirement areas, or on roadway sections with continual high collision rates.

- On December 2, 2019 the Province passed the regulation which allows municipalities to operate an Automated Speed Enforcement program.
- Based on discussions with the Ontario Traffic Council ASE working group, it has been noted that the cost of ASE cannot be recovered without also designating school zones (ASE zone) as Community Safety Zones, otherwise the program is unsustainable.
- As a new initiative for Ontario, the capital and operating costs are estimates and would need to be monitored closely in the initial year of any program.
- As the revenue generated by the program is dependent on numerous factors, the anticipated revenue of the program cannot be estimated at this time.
- Town staff will continue to monitor the Region's program, as well as other municipalities and would report back to Council for any proposed implementation of ASE within the Town of Whitby.
- There is currently in the budget \$51,500 in 2020 to collect traffic data and consider potential costs associated with implementation of ASE. An additional \$100,000 is included in 2022 for potential implementation.

3. Background:

On May 30, 2017 the Legislative Assembly of Ontario passed Bill 65, Safer School Zones Act, which amended the Highway Traffic Act (HTA) to authorize the use of Automated Speed Enforcement (ASE, commonly referred to as "photo radar") in school zones and community safety zones on roadways with posted speed limits less than 80 kilometres per hour.

The HTA amendments that enable ASE deployments permit the road authority to implement ASE on roadways within their jurisdiction that meet the legislated criteria. It also provides a streamlined process for municipalities to participate in Ontario's Red-light Camera Program without the need for lengthy regulatory approval.

4. Discussion:

As per Bill 65, Safer School Zone Act and subsequent HTA amendments, ASE can only be implemented in school zones and in community safety zones where the speed limit is less than 80 km/h.

School Zones

Currently, the Town reduces the posted speed limits, from 50 km/h to 40 km/h, along the frontages of elementary schools located on locally owned roads within Whitby. Although signed as a school zone, through the use of warning signage, school zones are not formally by-lawed by the Town. Based on the current Highway Traffic Act regulation (Section 128.5 of the HTA), the Town must By-law

the School Zone in order to implement an Automated Speed Enforcement Program in school zones. An update to the Traffic By-law would be undertaken as part of any implementation of ASE within the Town.

Community Safety Zones (CSZ)

The Highway Traffic Act (HTA) delegates authority to Municipal Councils to designate a part of a highway under its jurisdiction as a Community Safety Zone.

- The HTA requires that the Community Safety Zones must be recognizable to the driver (by regulatory signs) as a special situation that warrants an increased awareness of community activity adjacent to the road right-of-way; thus, the need for an increased awareness for traffic safety.
- Areas of special concern include roads fronting or in the vicinity of elementary or secondary schools; major community parks and playgrounds; community centres; hospitals; and seniors residences.
- In a Community Safety Zone the fines for offences within the Highway Traffic Act (i.e. speeding, careless driving, etc.) may be doubled. Parking fines cannot be increased within a Community Safety Zone.
- The establishment of the new Community Safety Zones requires that the new roadway section is added to the existing Community Safety Zone Schedule in the Traffic By-Law and that the appropriate Community safety Zone signage need to be installed.
- There are currently nineteen (19) roadway sections designated as a Community Safety Zone within the Town of Whitby. Sixteen (16) CSZ's are on Town roads, two (2) on regional roads and one (1) is on a provincial road. The Community Safety Zones located on Town roads are on an arterial or a collector road and adjacent to a school and/or a major park or open space.
- The costs associated with the implementation of a Community Safety Zone (i.e. signage costs) have not been quantified as the number of signs is dependent on the length of the CSZ. In 2015, 11 CSZ's were implemented at an estimated cost of \$18,000.

Automated Speed Enforcement (ASE)

Town of Whitby Public Works staff, along with 26 other municipalities, have been participating in the province wide Automated Speed Enforcement working group initiated by the Ontario Traffic Council (OTC). This working group was set up in an effort to establish common operation principles for ASE across the province. The working group has had discussions on key issues such as school zones and community safety zones, site selection criteria, technology options (fixed vs. mobile), hours of operation, speed enforcement thresholds, anticipated impacts to court services, implementation costs, expected program revenues and initial

warning period. The group recommendations were provided to the Province for preparations of the required regulations.

On December 2, 2019 the Province passed the regulation which allows municipalities to operate an Automated Speed Enforcement program. As part of the regulation, the Province also established the requirement for the municipalities to implement a 90 day initial warning period in advance of all new ASE system deployment. With the passing of the regulation, a number of municipalities have started the process of implementing ASE programs including Toronto, Ottawa, the Region of Durham and the Town of Ajax. The Region of Durham has already deployed or is in the process of deploying ASE cameras at numerous locations throughout the Region. The Town of Ajax is expecting to implement the ASE program in January 2021. Within Whitby, the Region will be deploying mobile cameras on Anderson Street by Anderson Collegiate Vocational Institute and on Taunton Road by Sinclair Secondary School.

Automated Speed Enforcement Program

An ASE program is the use of a roadside speed measurement device and camera that can automatically detect the speed of a vehicle, compare it to a designated speed threshold, and take a photograph of the rear license plate, as necessary. This technology can be implemented as a fixed or mobile camera deployment. Images that are captured are stored locally on the device and an operator retrieves the images to deliver them to the processing centre.

In Ontario, the central processing centre for all ASE offences is located in the City of Toronto. At the processing centre, Provincial Offences Officers review the images, determine if a charge is to be laid, access the MTO vehicle ownership database and prepare necessary charging documents to be mailed to the courts as well as the registered owner of the vehicle. Table 1 includes requirement details.

Table 1: ASE Requirements

Required Agreements	Details
ASE technology provider	<ul style="list-style-type: none"> • Through a joint procurement process with the City of Toronto a preferred contractor has been identified, Redflex Traffic Systems (Canada) Limited. • Each municipality must enter into a separate agreement for the ASE services. • The agreement requires a multi-year commitment and establishes

Required Agreements	Details
	<p>a daily rate for each ASE device. It also identifies start-up costs and relocation costs for mobile units</p>
<p>Ontario Ministry of Transportation (MTO) to access their vehicle ownership database</p>	<ul style="list-style-type: none"> • MTO charges a per transaction fee every time the database is accessed by the Joint Processing Centre. • These fees are invoiced to the municipality on a quarterly basis.
<p>City of Toronto who operates the ASE Joint Processing Centre</p>	<ul style="list-style-type: none"> • The City of Toronto charges each municipality on a cost recovery basis. • The charge includes both a portion of fixed costs (for the facility, equipment, etc.) and per transaction costs.
Site Requirements	Details
<p>School Zones</p>	<ul style="list-style-type: none"> • Designate and sign school zones within the Town's Traffic By-law
<p>Community Safety Zones</p>	<ul style="list-style-type: none"> • Designate and sign Community Safety Zones within the Town's Traffic By-law
<p>Speed Limit</p>	<ul style="list-style-type: none"> • Posted speed limit of less than 80 km/h • The posted speed limit must be consistent. Roads currently with a flashing 40 km/h (Carnwith Drive and Garden Street) are not eligible for ASE.

Should the Town proceed with an Automated Speed Enforcement program, there are various considerations related to implementation.

- **Fixed versus Mobile Operations:** Mobile operation would allow for more locations but there would be additional costs associated with moving the cameras between locations. It is anticipated that moving the cameras regularly will allow for better value as a traffic calming initiative/tool as stationary cameras may not continue to capture speeding.
- **Hours of Operation:** There are many important factors that need to be considered before selecting the appropriate hours of operation, including the roadway characteristics and any influences by surrounding land uses.
- **Travel Speed Threshold:** The threshold at which a ticket is issued will impact number of tickets issued. If the threshold is too high it suggests that speeding is acceptable. The accuracy of the speed measurement component of each ASE device is tested annually to ensure precision.
- **Impacts on the court system:** Currently, all ASE offences in the Province are processed through courts as Provincial Offences Notices which require significant resources. The Town would rely on the Durham Region Courts to process charges.

It is important to note that in order to manage the workload of the court system, a number of municipalities throughout the province including the Region of Durham and Town of Ajax requested the Province to permit the use of Administrative Monetary Penalty System (AMPS) for automated speed enforcement offences. Transportation Services would support the use AMPS.

- **Impact on the Processing Centre:** The Joint Processing Centre must have sufficient capacity to process the images that are captured during the hours of operation. As the ASE program is initiated and/or expanded in other municipalities, the processing centre will have to increase its capacity and resources.
- **Location(s) for Implementation:** Transportation Services staff would use available traffic data to identify school zones where speeding is a verified issue.

Cost of Automated Speed Enforcement

The estimated costs to implement ASE are based on information provided by the Region of Durham and Town of Ajax related to their existing or upcoming programs. Given that this is a new initiative for all municipalities in Ontario, costs are estimated and will need to be monitored closely in the initial year of the program.

Table 2 provides the preliminary estimates of the costs associated with the operation of a fixed or mobile camera. It should be noted that the hours of operation can be determined (increased or decreased) depending on the location and/or severity of speeding infractions and in turn this will increase or decrease the overall costs of the program.

Based on the discussions at the OTC ASE working group, it was noted that the cost of ASE cannot be recovered without designating school zones (ASE zone) as Community Safety Zones so that the fines would be doubled. Without the doubling of fines the program is unsustainable.

Table 2: Estimated Automated Speed Enforcement Program Costs

Item	Rate	Estimated Cost
Fixed Speed Camera	Lump some	\$32,000/year
Daily Rate for Mobile Speed Camera	\$85 per camera per day	\$31,025/year
Set up Cost	per set up	\$250
Moving Cost	per move	\$75
Advance Warning Signage	per location	\$1,000
MTO Vehicle Ownership Database Fees	per ticket	\$1
Joint processing Centre Fees	per ticket	\$20
Court processing Fees	per ticket	\$65

The costs related to vandalism have not been included. It is noted that frequent vandalism has resulted in additional costs in the Region of Durham and City of Toronto.

As the revenue generated by the program is directly proportional to the hours of operation per day and the number of speed violations, the exact revenue of the program cannot be estimated at this time.

Fines

On the offence notice (ticket) that is mailed to the owner of the motor vehicle, there is a total payable that consists of the set fine, which is based on the rate of speed over the speed limit, the victim fine surcharge and court costs. Set fines are

established by the Chief Judge of the Ontario Court of Justice and can be viewed on the Ontario Court of Justice web site. Separate set fines apply if the offence was committed in a Community Safety Zone – effectively the regular set fine is doubled. No demerit points will be issued by the Ministry of Transportation and no one's driving record will be impacted.

There is no Set Fine when a driver has exceeded the posted speed limit by 50 km/h or more. In these circumstances, a summons will be issued to the registered vehicle owner to appear before a Justice of the Peace.

Next Steps

- In 2021 Town staff will continue to monitor the implementation and lessons learned by other municipalities in Ontario who have deployed ASE in their respective jurisdictions. Staff will also consider any opportunities for efficiencies with the Region or other Durham Lakeshore municipalities.
- Public Works staff will consider site selection for implementation of ASE in Whitby and collect traffic data as necessary.
- Staff would report back to Council with an update on cost considerations and lessons learned from other municipalities and outline the details of potential Town of Whitby Automated Speed Enforcement Program for consideration including future Capital Budget requirements.
- Complete the appropriate amendments to the Traffic By-Law for the inclusion of the new School Zones and/or Community Safety Zones.
- There is currently in the budget \$51,500 in 2020 to collect traffic data and consider potential costs associated with implementation of ASE. An additional \$100,000 is included in 2022. The budget will be refined as needed.

5. Financial Considerations:

No financial impacts at this time.

6. Communication and Public Engagement:

N/A

7. Input from Departments/Sources:

Input received to date from the Region of Durham, Town of Ajax and Ontario Traffic Council's ASE working group has been considered.

8. Strategic Priorities:

The potential implementation of Automated Speed Enforcement Program will contribute to the following:

Council's Goals:

To continue the Whitby tradition of responsible financial management and respect for taxpayers; and to understand the importance of affordability and sustainability to a healthy, balanced community.

To ensure Whitby is clearly seen by all stakeholders to be business and investment friendly and supportive; and to continuously improve the customer experience and the effectiveness and efficiency of communications, service delivery and approvals.

To make our streets and neighbourhoods safer through innovative and best-practice design standards and traffic calming measures that reduce traffic speeds; to increase citizen involvement in building Complete Streets; to effectively manage parking on residential streets and in our downtowns; and to reduce the traffic impact of new developments on existing neighbourhoods.

Corporate Strategic Plan:

This report support the Corporate Strategic Priority 3: Customer: to provide a consistent, optimized and positive customer service experience. The report focuses on customer needs and service delivery.

Accessibility:

This Town report provides information in an accessible format and provides clear communication.

Sustainability:

This Report PW 27-20 compliment the Sustainability Vision that the Town of Whitby will be a healthy, sustainable and complete community. This is accomplished through improving traffic safety on the street and providing safer streets.

9. Attachments:

N/A

Appendix D

Town of Bradford West Gwillimbury Staff Report – Automated Speed Enforcement (ASE) Program



REPORT #: COM 2020 26
DATE: 29 Oct 2020
TO: Members of the Committee
SUBJECT: **Automated Speed Enforcement**
PREPARED BY: Paul Dubniak, Transportation Technologist

1. RECOMMENDATIONS:

That Report COM 2020 26, entitled “Automated Speed Enforcement” be received for information.

2. PREAMBLE:

At the September 2020 Traffic Committee meeting, the Committee requested additional information on the automated speed enforcement program currently underway in a number of GTA municipalities.

3. BASIC DATA PERTAINING TO THE MATTER:

Automated Speed Enforcement (ASE), an automated system that uses a camera and a speed measurement device to enforce speed limits in identified areas, is designed to work in tandem with other road safety measures, such as engineering activities, education initiatives and police enforcement, to help improve safety for people of all ages by:

- Increasing compliance of posted speed in designated areas (school)
- Altering driver behaviour
- Increasing public awareness about the critical need to slow down

With that in mind, in 2017, [Bill 65 – the Safer School Zones Act](#) amended the Highway Traffic Act (the Act) to introduce the use of ASE in school zones and community safety zones across the province. With the most recent Ontario Road Safety Annual Report from the Ministry of Transportation showing that the number of people killed in Ontario in speed-related collisions increased by 13 per cent from 2015 to 2016.

How ASE in Ontario Works

The Ontario program was developed in partnership with the MTO, municipal groups and transportation associations. ASE echoes the red light program in terms of data, collection and fines being issued.

The ASE system is comprised of three main parts:

1. A speed measurement component.
2. An image capture component that includes a data box with the posted speed limit, the speed of the vehicle, the location, the time of day, and other information.
3. A data processing/storage component. Along with a chain custody of that information.

If a vehicle exceeds the posted speed limit in an ASE-enforced area, the ASE system captures an image that is stored and reviewed by a provincial offences officer. The ticket, which contains a digitized copy of the image and an enlargement of the plate portion, is then mailed to the registered plate holder within 30 days of the offence, outlining [next steps](#) and the cost of the associated fine. Demerit points are not issued with an ASE ticket.

Fines and Penalties

Pay a ticket

If you receive a ticket in the mail, information on how to pay it will be included on the back. Options for payment and requesting a trial are also included – all specific to the municipality in which the offence occurred.

Early resolution or walk-in plea of guilty

If you receive a ticket, you also have the option of early resolution or a walk-in plea of guilty with information specific to the location where the offence occurred as set out in the offence notice or ticket.

Request a trial

If you want to challenge a ticket, you may request a trial.

Trial details

There will be no witnesses for the prosecution at a trial. Instead, the prosecutor will rely on the certified statement of the provincial offences officer, the certified proof of ownership and certified copies of the image or picture of the motor vehicle. This includes the data box as well as an enlargement of the plate portion.

The provincial offences officer who completes the certified statement or certifies the photographs can only be compelled to attend the trial if an application is made to the presiding judicial officer at the trial. The application would only be successful if you are able to show that the attendance of the provincial offences officer is necessary to ensure a fair trial but because the provincial offences officer sets forth all of his or her knowledge of the alleged offence in the certified statement it can be difficult to meet this test.

In addition, the certificate of accuracy for the speed measurement device proves that the speed measurement taken by the ASE system is accurate. A copy of the certificate may be provided as part of the disclosure of the prosecution's case or you, as the defendant, may be directed where to view it. You should note that the set fine indicated on the offence notice will

no longer apply if you are convicted at trial. Instead the penalties that will apply are outlined in the [Highway Traffic Act](#).

Program

To participate in the program an agreement must be signed with the vendor on record (Redflex), MTO to request licence plate/ownership information, and with the City of Toronto to lay charges on your behalf. The agreement with the City of Toronto is a result of the fact that Toronto currently operates the Joint Processing Centre (JPC) and issues ASE tickets on behalf of the partnering municipalities.

There is no set number of cameras as was recommended with the red light cameras. It would be the Town's operational decision, budget, capacity of your Courts etc. The shared JPC costs are primarily based on the number of charges issued. Camera costs are part of the vendor contract – the main items are an initial installation cost, a daily rate per camera and a redeployment cost.

For the project creation there was a one-time start-up cost of approx. \$900,000 which was shared equally among 9 partners (\$100,000 each). Each new agency that joins the program will pay into this start up cost and a credit issued to existing members. It is difficult to estimate annual costs without projected charge volume as the costs are mostly proportionate based on charge volume. For example, if you are estimating 5,000 charges per year and all municipalities who intend to join by 2021 have done so, the Town would be looking at approx. \$50,000 per year for the JPC portion of the contract. The JPC group is looking for a permanent facility which may see the costs increase.

There are two options on camera systems, semi-fixed and mobile. Semi-fixed require some civil work as the housing is permanent (pad, electrical, etc) but the camera can move to other semi-fixed sites. The average cost of a semi-fixed base is \$34,000 (Only Ottawa and Waterloo so far). Mobile units are all self-contained (battery operated). The vendor is responsible for moving/rotating the cameras. The cameras themselves have an annual cost of approx. \$35,000. The vendor would move the camera upon municipal request. Initial costs to prep the site and calibrate is \$255. If the cameras were to be moved to a location that has already has the cameras, the charge is \$75. The municipality is responsible for all signage. Once the agreements are signed, the cameras are on road within 60 days.

Two additional factors that would need to be addressed should the Committee/Council chose to start an ASE program:

1. Ability for the courts to handle a potential case increases
2. Any agreements to where paid fine revenues would come back to the Town

For Committee consideration, the following are several traffic counts from Community Safety Zones completed in 2020 and 2018, specifically noting the volume of traffic 16+ km/h over the limit for a period of 1 week:

Colborne at Marie of the Incarnation (2020) – 726 (7% of weekly volume)

Maple Grove between Collings and Fred C. Cook (2020) – 123 (3% of weekly volume)

Miller Park between West Park and Sutherland (2020) – 1,756 (6% of weekly volume)

Northgate between Longview and Fox Run (2020) – 986 (4% of weekly volume)

Fletcher at Fred C. Cook (2018) – 2,032 (9% of weekly volume)

West Park south of Fairside (2018) – 789 (3% of weekly volume)

4. EFFECT ON TOWN FINANCES:

While there are no costs associated with the recommendation of this report, should the Committee wish to join the program an approximate cost (as of writing) is as follows.

Initial program cost - \$90,000 estimate depended on amount of early adopters.

Annual JPC cost - \$50,000 (assuming 5,000 fines)

Annual Camera costs - \$38,000 (mobile unit, moving every month to a new location)

Total Year 1 - \$178,000 + moving costs per location.

5. ATTACHMENTS:

None.

6. APPROVALS:

Joe Coleman, Manager of Transportation
Terry Foran, Director of Community Services

Approved - 21 Oct 2020
Approved - 26 Oct 2020

Appendix E

Traffic Calming Measures in TAC *Canadian Guide Traffic Calming Guide*



POTENTIAL TRAFFIC CALMING MEASURES

Measure	Location Applicability			Potential Benefits				Potential Disbenefits					
	Local/Collector	Urban Arterial	Rural Arterial	Speed Reduction	Volume Reduction	Conflict Reduction	Environment	Local Access	Emergency Response	Active Transportation	Enforcement	Parking	Maintenance
VERTICAL DEFLECTION (SECTION 3.2)													
Raised Crosswalk	✓	✗	✗	■	□	■	■	○	○	○	○	○	○
Raised Intersection	✓	✗	✗	■	□	■	■	○	○	○	○	○	○
Speed Cushion	✓	✗	✗	■	■	■	■	○	○	○	○	○	○
Speed Hump/ Table	✓	✗	✗	■	■	■	■	○	●	○	○	○	○
HORIZONTAL DEFLECTION (SECTION 3.3)													
Chicane (One-Lane, Two-Lane)	✓	✗	✗	■	■	■	■	○	○	○	○	●	○
Curb Radius Reduction	✓	▲	✗	■	□	□	■	○	○	○	○	○	○
Lateral Shift	✓	▲	✗	□	□	□	□	○	○	○	○	○	○
Speed Kidney	✓	✗	✗	■	□	□	■	○	○	○	○	○	○
Traffic Circle/Traffic Button/Mini-Roundabout	✓	✗	▲	■	□	■	■	○	○	○	○	○	○
ROADWAY NARROWING (SECTION 3.4)													
Curb Extension	✓	✓	✗	■	□	□	■	○	○	○	○	●	●
Lane Narrowing	✓	▲	✗	■	□	□	□	○	○	○	○	○	○
On-Street Parking	✓	▲	✗	■	□	□	■	○	○	○	○	○	○
Raised Median Island	✓	▲	✓	■	□	■	□	○	○	○	○	○	○
Road Diet	✓	✓	✗	■	□	■	■	○	○	○	○	○	○
Vertical Centreline Treatment	✓	✗	✓	■	□	□	□	○	○	○	○	○	○
SURFACE TREATMENT (SECTION 3.5)													
Sidewalk Extension/ Textured Crosswalk	✓	▲	✗	■	□	■	■	○	○	○	○	○	●
Textured Pavement	✓	✗	✗	■	□	□	■	○	○	○	○	○	●
Transverse Rumble Strips	▲	✗	✓	■	□	□	□	○	○	○	○	○	○
PAVEMENT MARKINGS (SECTION 3.6)													
Converging Chevrons	✓	▲	✓	■	□	□	□	○	○	○	○	○	○
Dragon Teeth	✓	▲	✓	□	□	□	□	○	○	○	○	○	○
Full-Lane Transverse Bars	✓	▲	✓	■	□	□	□	○	○	○	○	○	○
On-Road 'Sign' Pavement Markings	✓	✓	✓	■	□	□	□	○	○	○	○	○	○
Peripheral Transverse Bars	✓	▲	✓	■	□	□	□	○	○	○	○	○	○
ACCESS RESTRICTION (SECTION 3.7)													
Directional Closure	✓	✗	✗	■	■	■	■	○	○	○	○	○	○
Diverter	✓	✗	✗	□	■	■	■	●	○	○	○	○	○
Full Closure	✓	✗	✗	□	■	■	■	●	●	○	○	○	○
Intersection Channelization	✓	▲	✗	□	■	■	■	●	○	○	○	○	○
Raised Median Through Intersection	✓	▲	✗	□	■	■	■	●	○	○	○	○	○
Right-in/Right-out Island	✓	▲	✗	□	■	■	■	○	○	○	○	○	○
GATEWAYS (SECTION 3.8)													
Gateways	✓	✓	✓	■	□	□	■	○	○	○	○	○	●
ENFORCEMENT (SECTION 3.9)													
Aircraft / Drone Radar Enforcement	✗	✗	✓	■	□	□	□	○	○	○	●	○	●

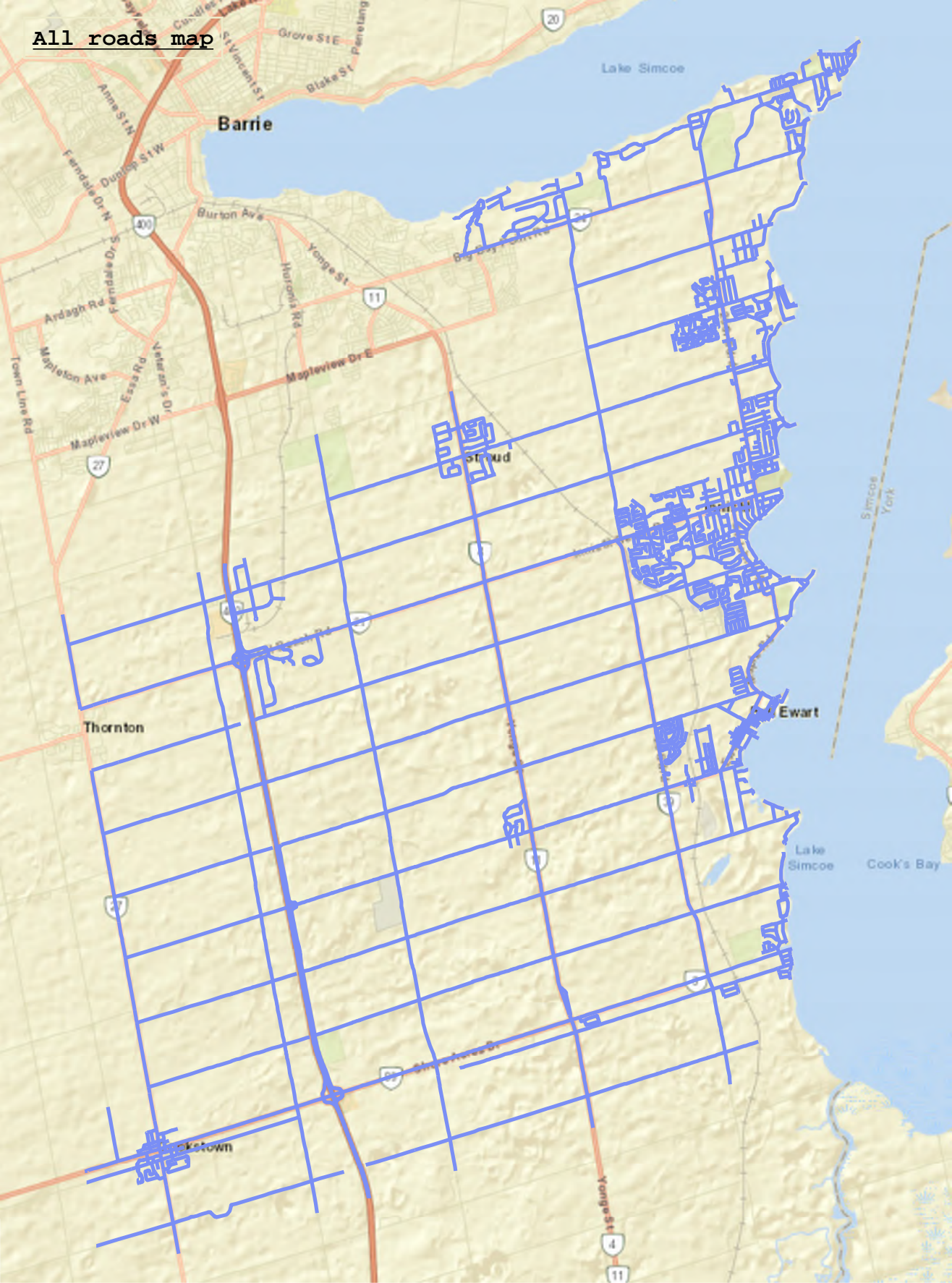
POTENTIAL TRAFFIC CALMING MEASURES

Measure	Location Applicability			Potential Benefits				Potential Disbenefits						
	Local/Collector	Urban Arterial	Rural Arterial	Speed Reduction	Volume Reduction	Conflict Reduction	Environment	Local Access	Emergency Response	Active Transportation	Enforcement	Parking	Maintenance	
Fixed Speed Enforcement	x	✓	✓	■	□	□	□	○	○	○	●	○	●	
Mobile Speed Enforcement	✓	✓	✓	■	□	□	□	○	○	○	●	○	○	
"Speed Watch" Program	✓	✓	x	■	□	□	□	○	○	○	●	○	○	
EDUCATION (SECTION 3.10)														
"Active and Safe Routes to School" Program	✓	x	x	□	□	□	□	○	○	○	○	○	○	
Pace Car Program	✓	▲	▲	□	□	□	□	○	○	○	○	○	○	
Speed Display Devices	✓	✓	✓	■	□	□	□	○	○	○	●	○	●	
Targeted Education Campaign	✓	✓	✓	□	□	□	□	○	○	○	○	○	○	
Vehicle Activated Signs (VAS)	✓	✓	✓	■	□	■	□	○	○	○	○	○	●	
SHARED SPACE (SECTION 3.11)														
Shared Space	✓	▲	x	■	□	■	■	○	○	○	○	●	●	
EMERGING TECHNOLOGIES AND MEASURES (SECTION 3.12)														
LED Pavement Markings	x	▲	▲	□	□	■	□	○	○	○	○	○	○	
Optical Illusion Pavement Markings	▲	x	▲	■	□	□	□	○	○	○	○	○	○	
Rest-on-Red Signal Phasing	x	▲	▲	■	□	■	□	○	○	○	○	○	○	
Section Control	x	▲	▲	■	□	■	□	○	○	○	●	○	○	
Variable Speed Limits	▲	▲	▲	■	□	■	■	○	○	○	○	○	○	
LEGEND	✓	Applicable		■	Substantial Benefits			●	Substantial Disbenefits					
	▲	Use with Caution		■	Minor Benefits			○	Moderate Disbenefits					
	x	Not Appropriate		□	No Benefits or Limited Data			○	No Disbenefit or Limited Data Available					

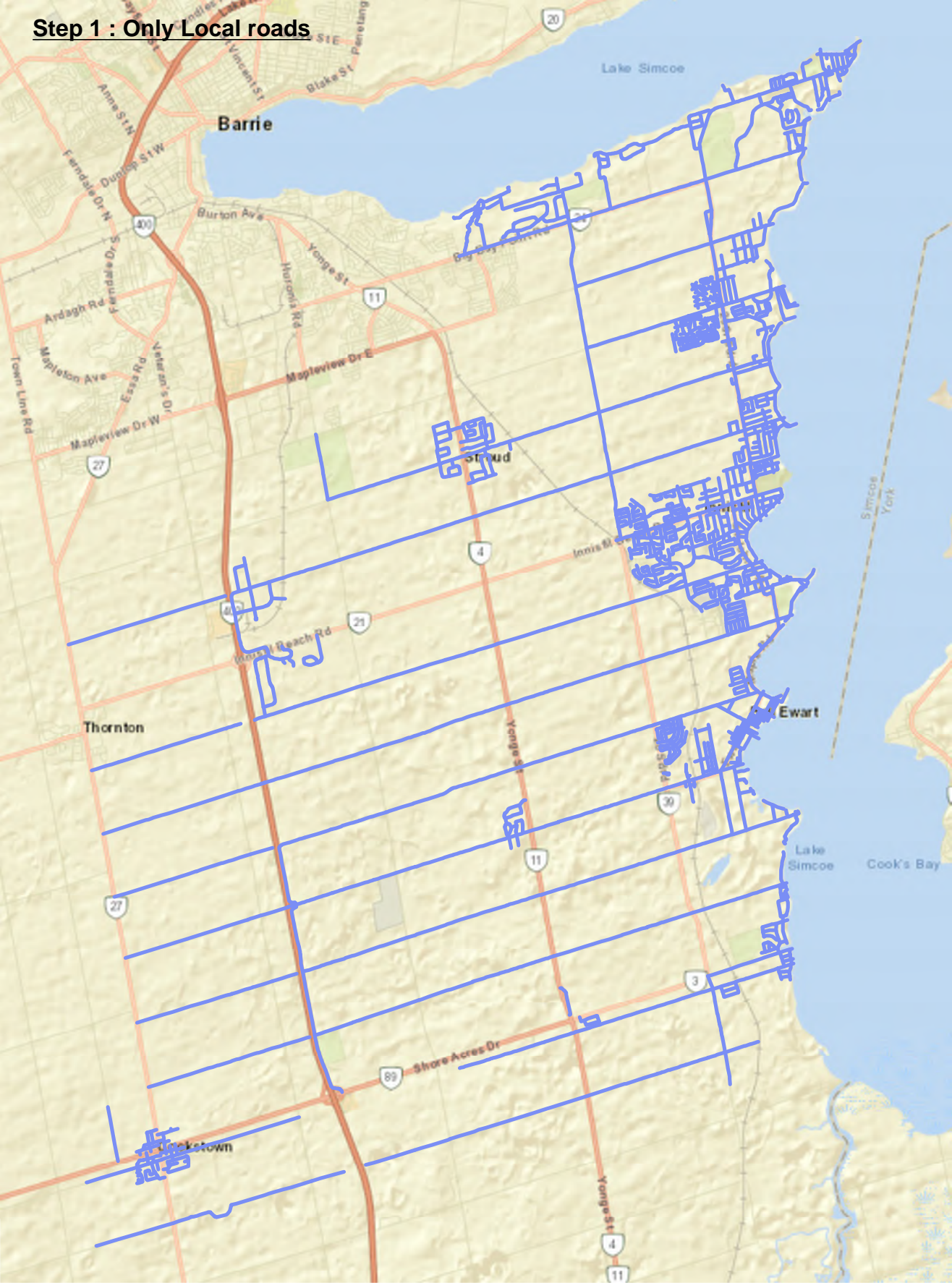
Appendix B:

Pilot Selection GIS Screening Application

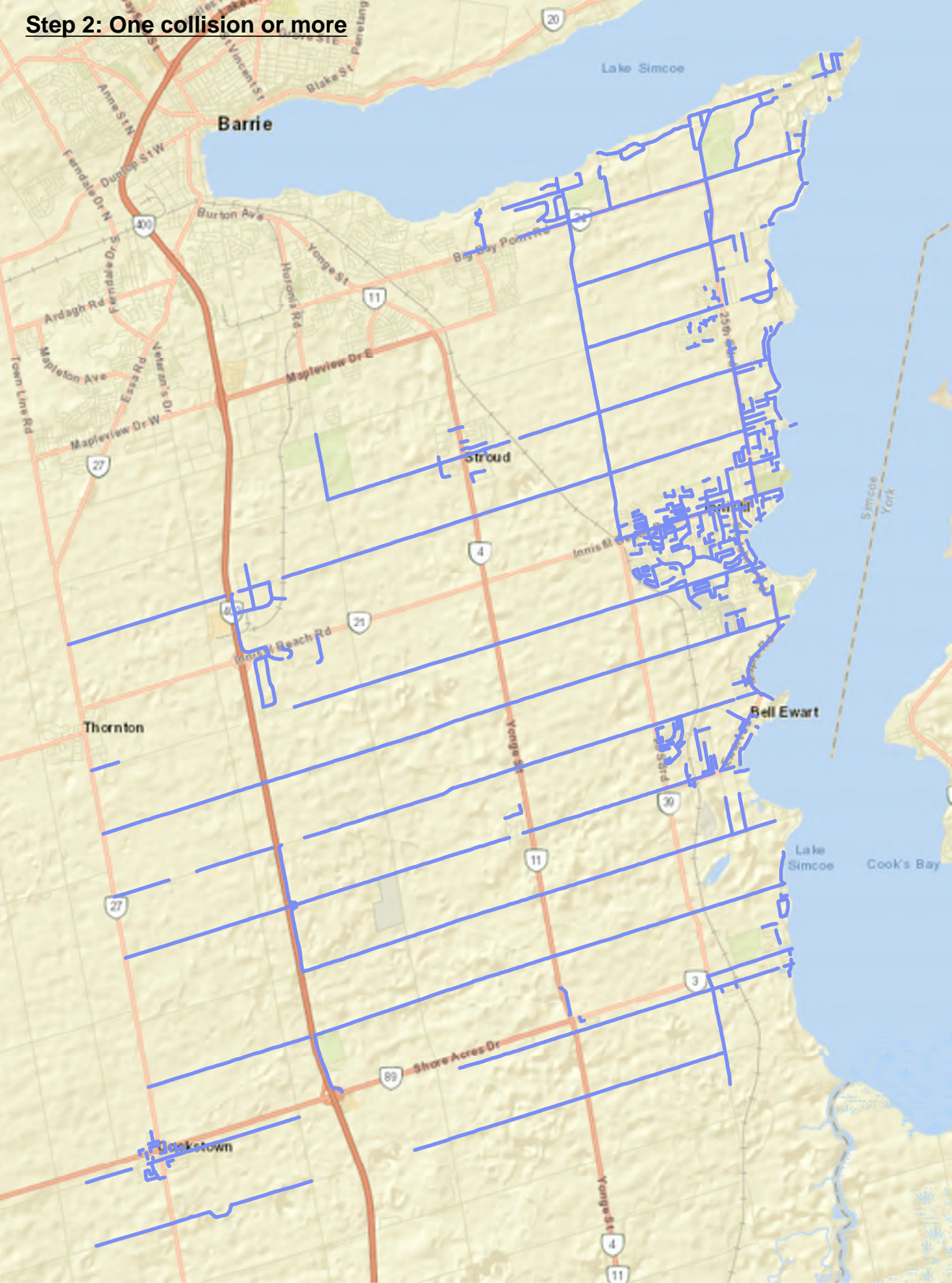
All roads map



Step 1 : Only Local roads



Step 2: One collision or more



Step 3: One Complaint Received or more



Step 4: Road Width greater than 6.5m



Step 6: Residential Area



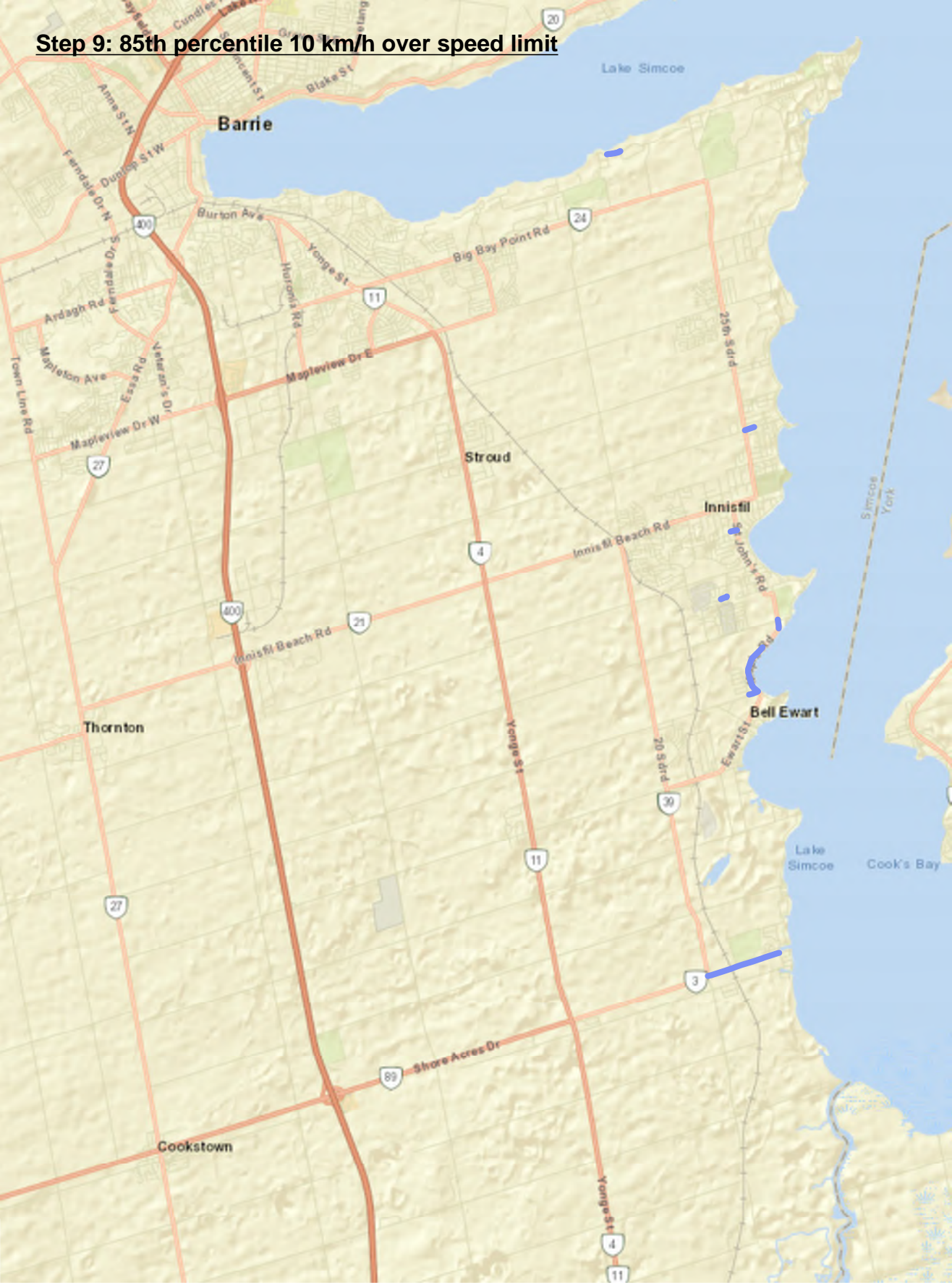
Step 7: Segment longer than 120 m



Step 8: AADT lower than 2000 vpd



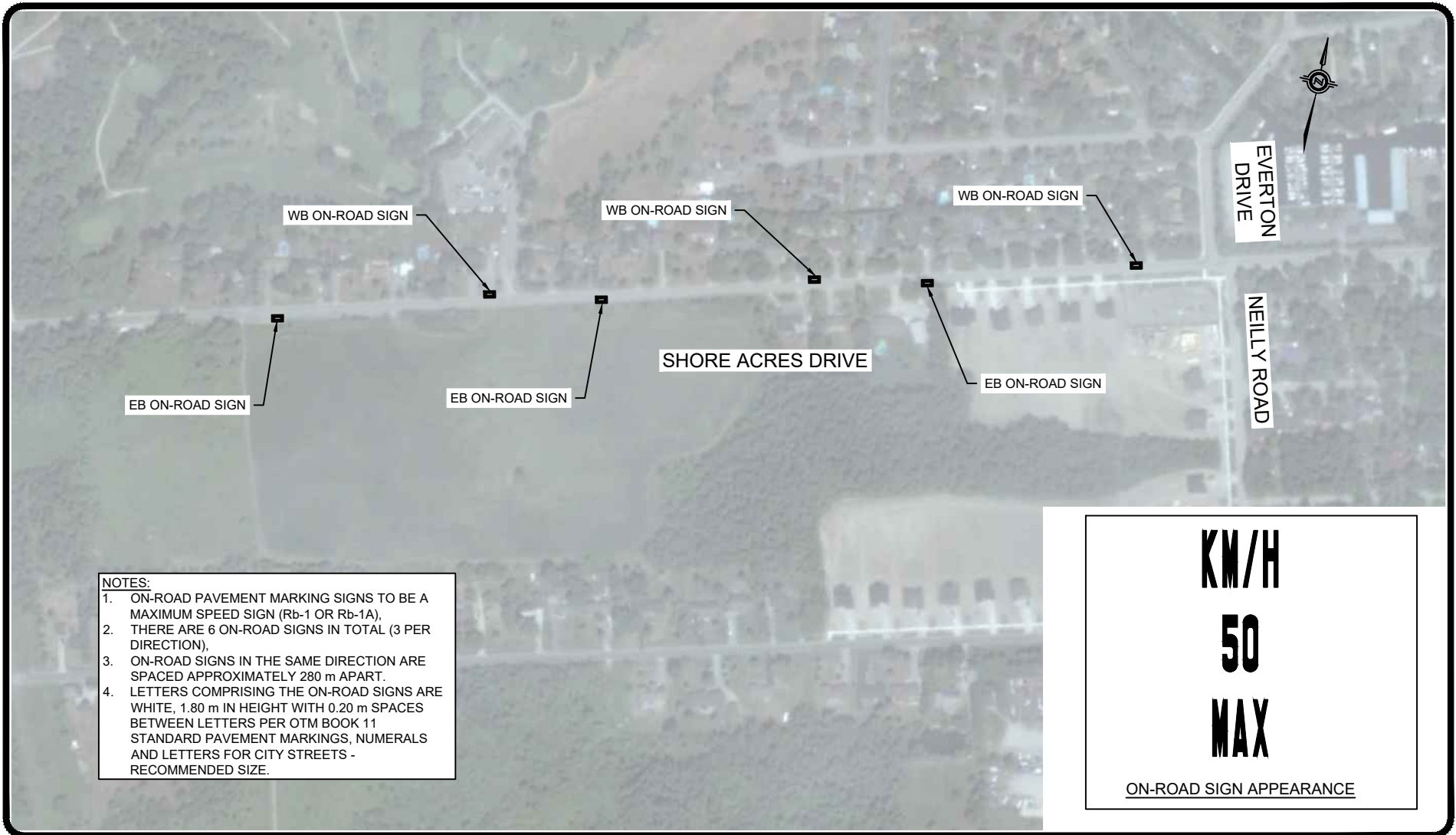
Step 9: 85th percentile 10 km/h over speed limit



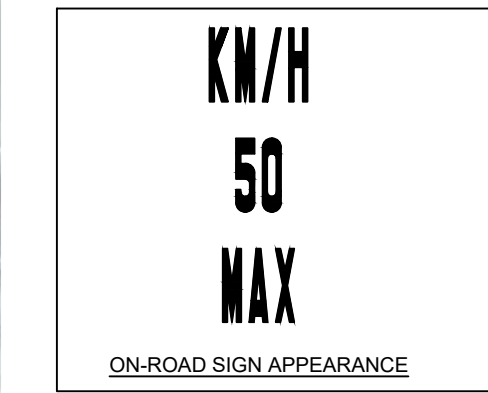
Step 10: Existing Traffic Calming Measures



Appendix C: Pilot Project Concept Drawings



- NOTES:**
1. ON-ROAD PAVEMENT MARKING SIGNS TO BE A MAXIMUM SPEED SIGN (Rb-1 OR Rb-1A).
 2. THERE ARE 6 ON-ROAD SIGNS IN TOTAL (3 PER DIRECTION).
 3. ON-ROAD SIGNS IN THE SAME DIRECTION ARE SPACED APPROXIMATELY 280 m APART.
 4. LETTERS COMPRISING THE ON-ROAD SIGNS ARE WHITE, 1.80 m IN HEIGHT WITH 0.20 m SPACES BETWEEN LETTERS PER OTM BOOK 11 STANDARD PAVEMENT MARKINGS, NUMERALS AND LETTERS FOR CITY STREETS - RECOMMENDED SIZE.

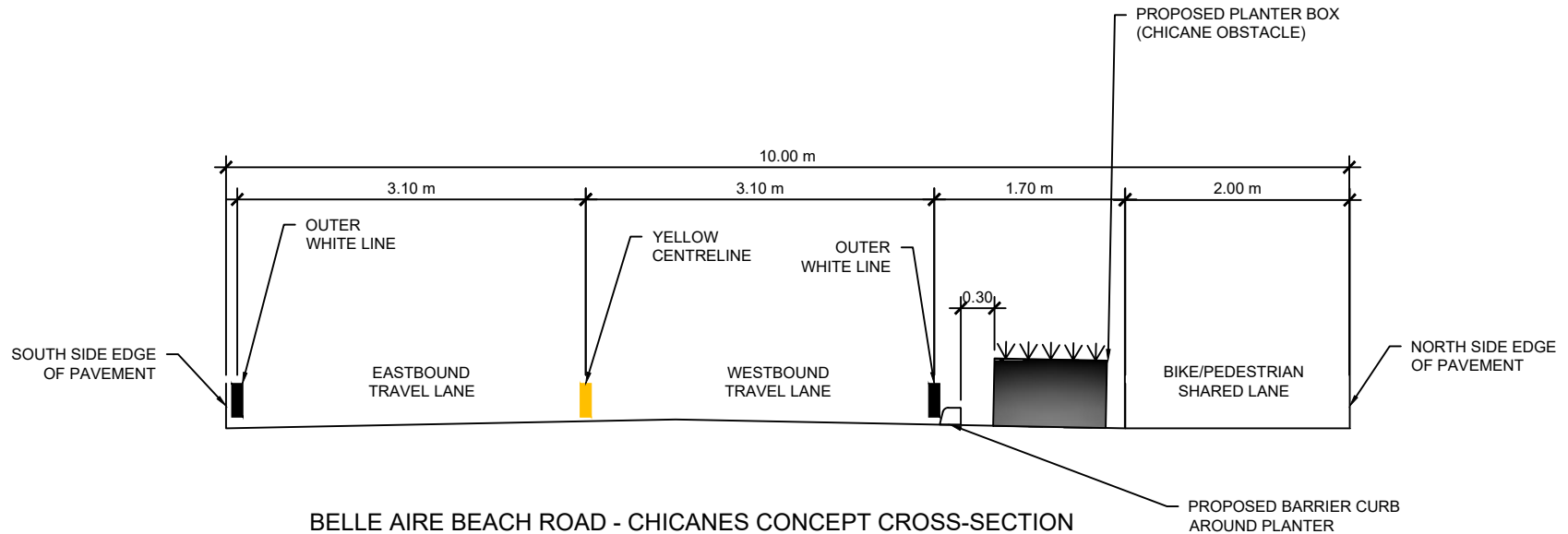


Project:		INNISFIL TRAFFIC CALMING A.1. STRATEGY OUTLINE REPORT	
Title:		SHORE ACRES DRIVE PILOT PROJECT CONCEPT ON-ROAD SIGNS	
Approved by:	G.KENT	Date:	MARCH 03, 2022
Project No.:	BRM00606266-A0		
Drawn by:	S.KING	Scale:	N.T.S.
Figure no.:	F-1		

- NOTES:**
1. CHICANES ARE FORMED BY 6 PLANTERS (3 IN EACH DIRECTION) SPACED APPROXIMATELY 120 m APART.
 2. FINAL PLANTER LOCATIONS WILL AVOID DRIVEWAYS AND PROPERTY ACCESS POINTS.
 3. DRIVEWAY SIGHT LINES TO BE MAINTAINED
 4. THE SKETCH BELOW SHOWS A ZOOMED IN PORTION OF THE EAST END OF THE ROAD SEGMENT.
 5. EACH PLANTER TO BE SURROUNDED BY BARRIER CURB.
 6. CROSS-SECTION SHOWN ON FIGURE F-3.



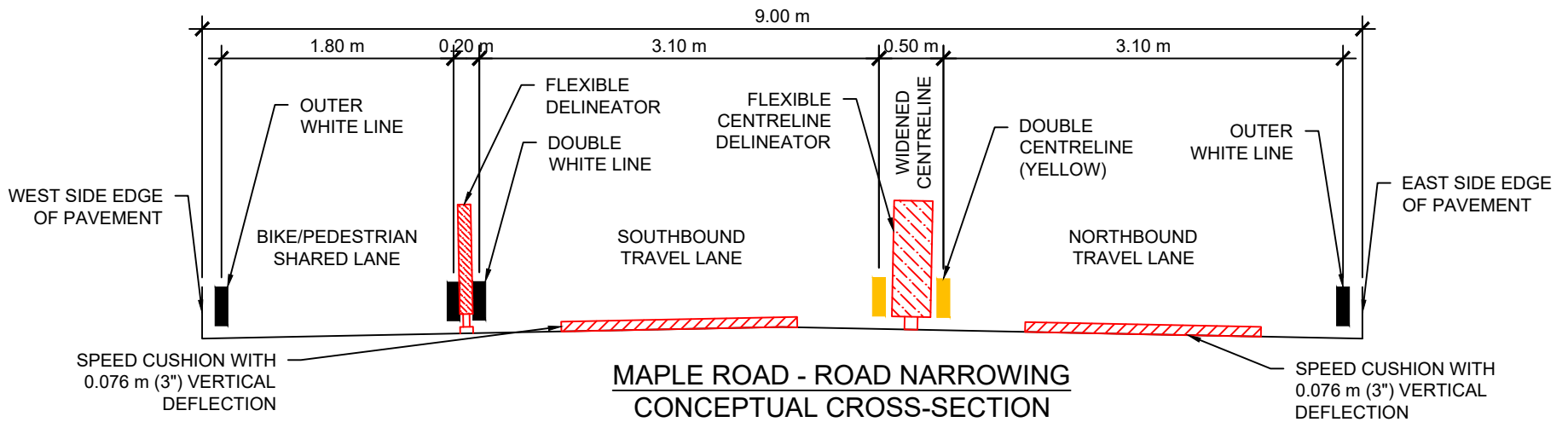
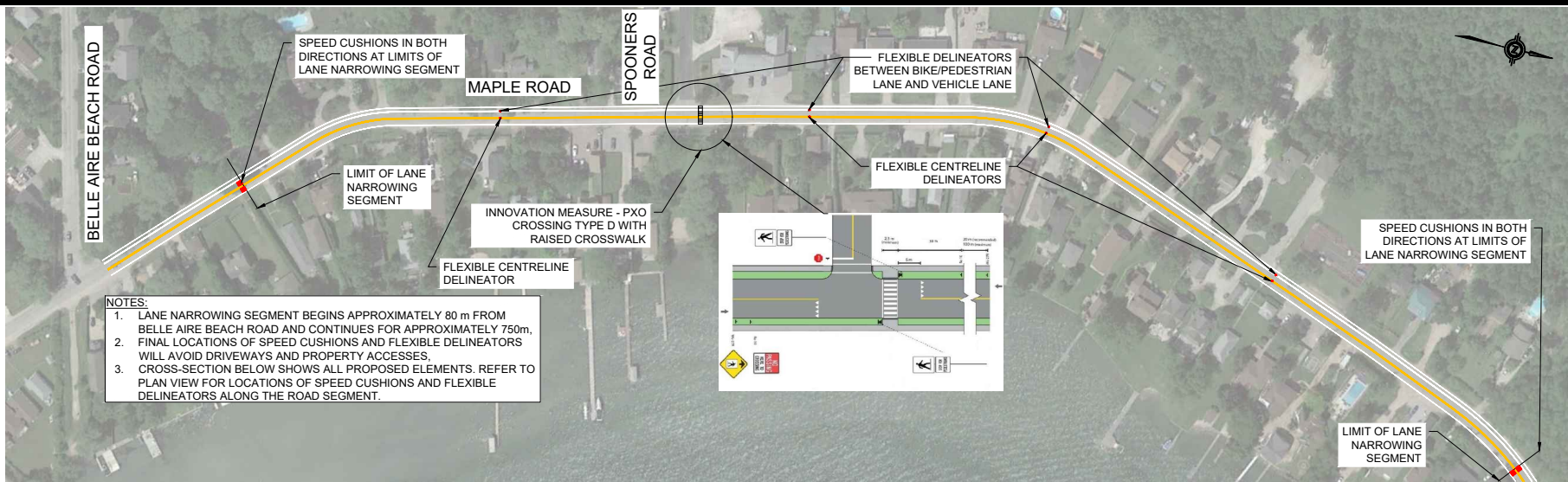
Project:		INNISFIL TRAFFIC CALMING A.1. STRATEGY OUTLINE REPORT	
Title:		BELLE AIRE BEACH ROAD PILOT PROJECT CONCEPT CHICANES (TWO-LANE) - PLAN VIEW	
Approved by:	G.KENT	Date:	MARCH 03, 2022
Project No.:	BRM00606266-A0		
Drawn by:	S.KING	Scale:	N.T.S.
Figure no.:	F-2		



BELLE AIRE BEACH ROAD - CHICANES CONCEPT CROSS-SECTION







Project:				INNISFIL TRAFFIC CALMING A.1. STRATEGY OUTLINE REPORT			
Title:				BELLE AIRE BEACH ROAD PILOT PROJECT CONCEPT CHICANE (TWO-LANE) - CROSS-SECTION			
Approved by:		G.KENT		Date:		MARCH 03, 2022	
Project No.:		BRM00606266-A0					
Drawn by:		S.KING		Scale:		N.T.S.	
Figure no.:		F-3					







Project:		INNISFIL TRAFFIC CALMING A.1. STRATEGY OUTLINE REPORT	
Title:		MAPLE ROAD PILOT PROJECT CONCEPT LANE NARROWING & SPEED CUSHIONS	
Approved by:	G.KENT	Date:	MARCH 03, 2022
Project No.:	BRM00606266-A0	Drawn by:	S.KING
Scale:	N.T.S.	Figure no.:	F-4



Appendix D: TCM Measures Design Table



TRAFFIC CALMING MEASURE	EXAMPLE	DESIGN CRITERIA
<p>Speed Cushion (Innisfil Pilot Study)</p> <p>Description: Raised areas on the roadway that cause a vertical deflection for vehicles, but do not cover the whole width of the road – allows larger vehicles to straddle the cushion¹.</p>	 <p>Source: National Association of City Transportation</p>	<ul style="list-style-type: none"> • All sides of cushion must be ramped to allow for drainage • All edges of ramps should be formed and keyed into existing asphalt • One speed cushion per travel lane is typical • Optimal width of a speed cushion is 1.8 m (narrow enough to allow emergency vehicles to pass unaffected) • Space between the cushions and the curb approximately 0.6 m • Distance between cushions if only two are installed must be at least 1.5 m (prevents heavy vehicles from passing too closely to one another) • The cushion design is shown in Figure 4.5 of the TAC Traffic Calming Design Guide (for non-transit routes or for locations where transit can drive over centreline for short periods of time) • Signage: Speed Hump sign (WA-50) facing traffic and immediately adjacent to the speed cushion (may require Speed Hump warning signs if visibility is an issue), required on both sides of road for one-way streets • Recommended pavement markings are shown in Figure 4.4 and 4.5 of the TAC Traffic Calming Design Guide • Preliminary estimation of installation costs – Medium • Reference: TAC Traffic Calming Design Guide
<p>Speed Hump/Table</p> <p>Description: Raised areas on the roadway that cause a vertical deflection for vehicles and cover the entire width of the roadway (speed tables are more elongated speed humps)¹.</p>	 <p>Source: Transportation Association of Canada</p>	<ul style="list-style-type: none"> • Use speed tables for roadways with higher design speeds • Similar configurations – speed tables have flat top section 3 m long by 80 mm high between the two halves of the local street hump • Vertical transition at end should be keyed into existing pavement • Use a series of speed humps/tables to retain slower vehicle speeds over longer distances – spacing of 80 m to 150 m is recommended to maintain an 85th percentile operating speed between 40 and 48 km/h • Install Speed Hump sign (WA-50) facing traffic and immediately adjacent to the speed hump • Configuration of design shown in Figure 4.6 and 4.7 of TAC Traffic Calming Design Guide • Preliminary estimation of installation costs – Medium • Reference: TAC Traffic Calming Design Guide



TRAFFIC CALMING MEASURE	EXAMPLE	DESIGN CRITERIA
<p>Raised Crosswalk (Innisfil Pilot Study)</p> <p>Description: Marked crosswalks that are at a higher elevation than approaching roadways¹.</p>	 <p>Source: District of Squamish, BC</p>	<ul style="list-style-type: none"> • Can be implemented at an intersection or mid-block • Typically, a crosswalk is 6.5 m wide with a minimum width of 2.5 m (in accordance with MUTCD) • Ramps (sloped section of crosswalk) on either side of crosswalk are typically 2 m in width each • Design shown in Figure 4.1 and 4.2 of the TAC Traffic Calming Guide • Location of raised crosswalks relative to curbs and sidewalks should be the same as for non-raised crosswalks • Vertical transition at end of retrofit raised crosswalk to be keyed into existing pavement • Signage: Speed Hump sign (WA-50) should be installed facing traffic and immediately adjacent to raised crosswalk (on both sides of the road for one-way streets); Pedestrian Crosswalk sign (RA-4) installed on both sides of road facing traffic (not required at traffic signal or stop-sign controlled intersections) • Preliminary estimation of installation costs – Medium • Reference: TAC Traffic Calming Design Guide
<p>Raised Intersection</p> <p>Description: Intersections that are at a higher elevation than approaching roadways¹.</p>	 <p>Source: National Association of City Transportation</p>	<ul style="list-style-type: none"> • Raised the same amount as any adjacent raised sidewalk (consistent throughout street system) • 80 mm recommended 15 mm curb face retained at all crosswalk locations • Sloping surfaces connecting adjacent sidewalks have tactile finish and slope of 6% or less • Vertical transition at end should be keyed into existing pavement • Minimum pavement slope of 1% for surface drainage • Install Speed Hump sign (WA-50) facing traffic and immediately adjacent to the speed hump unless intersection is stop controlled (no signage needed) • Configuration of raised intersection design illustrated in Figure 4.3 of TAC Traffic Calming Design Guide • Preliminary estimation of installation costs – High • Reference: TAC Traffic Calming Design Guide


TRAFFIC CALMING MEASURE	EXAMPLE	DESIGN CRITERIA
<p>Actibump</p> <p>Description: A radar-controlled module that sinks into the roadway for vehicles with a detected speed over the posted limit.</p>	 <p>Source: Actibump</p>	<ul style="list-style-type: none"> • To be installed as per manufacturer requirements • Preliminary estimation of installation costs – High
<p>Chicane (Innisfil Pilot Study)</p> <p>Description: A series of curb extensions that alternate between sides of a roadway. Designed to narrow the roadway and require drivers to make a horizontal deflection to steer between them².</p>	 <p>Source: Traffic Calming Guide for Toronto</p>	<ul style="list-style-type: none"> • Development of effective 2-lane chicanes is restricted to wider local or collector streets • Two-lane chicanes require a pavement width of at least 12 m • One-lane chicanes require a pavement width of at least 7 m • Chicane must disrupt any single lane alignment along the street – offset between the apexes of adjacent chicane islands must be 2 m or less • Parking and stopping prohibited within the limits of the chicane • Signage: Object Markers (WA-36) typically provided at its apex (note that Delineation Markers (WA-37) or bollards with reflective striping may be an alternative to Object Markers); Yield to Oncoming Traffic sign (TC-178) required for a two-way one-lane chicane in advance of the chicane; Stopping Prohibited sign (RB-55) required • Pavement Markings: solid yellow line or raised median may be used to separate opposing traffic on two-lane chicane • Preliminary estimation of installation costs – High • Reference: TAC Traffic Calming Design Guide



TRAFFIC CALMING MEASURE	EXAMPLE	DESIGN CRITERIA
<p>Lateral Shift</p> <p>Description: A change in the alignment on the roadway causing drivers to make a horizontal deflection².</p>	 <p>Source: Institute of Transportation Engineers</p>	<ul style="list-style-type: none"> • Applicable for one-lane one-way and two-lane two-way streets • Applicable for streets with or without bike lanes • Can be used on streets with bus transit routes/emergency vehicle routes (buses and emergency vehicles must be able to straddle centreline) • Opposing traffic through the lateral shift can be separated with raised median • Applicable in mid-block locations only • Should be located near streetlights if possible • Preliminary estimation of installation costs – Medium to High • Reference: Institute of Transportation Engineers (https://www.ite.org/pub/?id=2a582794%2Dfd92%2D4e12%2Defa0%2Ddc618963b268)
<p>Curb Radius Reduction</p> <p>Description: Reconstruction of the corner of an intersection that uses a smaller radius².</p>	 <p>Source: National Association of City Transportation</p>	<ul style="list-style-type: none"> • Introduce the smallest radius required to accommodate a passenger vehicle (3-5 m) and then check for larger vehicles • Evaluate risk of damage to sidewalks caused by larger vehicles as well as risk to pedestrians • In isolation do not require any additional signing or pavement markings • Relocation of existing utility poles, posts, and signing and pavement marking replacement may be required • Potential designs shown in Figure 4.9 of TAC Traffic Calming Design Guide • Preliminary estimation of installation costs – High • Reference: TAC Traffic Calming Design Guide

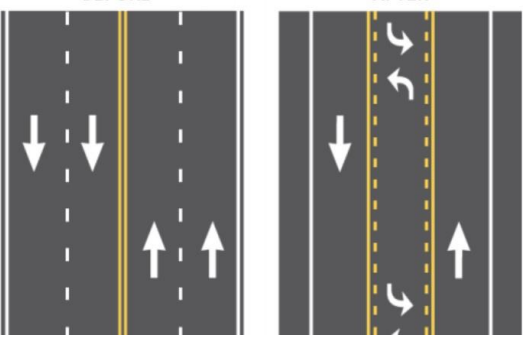

TRAFFIC CALMING MEASURE	EXAMPLE	DESIGN CRITERIA
<p>Speed Kidney</p> <p>Description: 3 Elongated speed humps arranged in a curvilinear shape positioned with the direction of traffic¹.</p>	 <p>Source: Mike on Traffic</p>	<ul style="list-style-type: none"> • Minimum lane width of 3.7 m • Sidewalk curb or edge line may require modification if street is not wide enough for a pair of speed kidneys • Radius of central curve dependent on radius of speed kidney • Speed kidney should be painted in white • Speed hump warning sign required • Can use WA-50 Speed Hump signs • Design shown in Figure 4.10 of TAC Traffic Calming Design Guide • Preliminary estimation of installation costs – High • Reference: TAC Traffic Calming Design Guide
<p>Traffic Circle</p> <p>Description: Raised island in the middle of an intersection that requires vehicles to drive in a circular, counterclockwise direction through the intersection² (Mini roundabout)</p>	 <p>Source: City of Vancouver, BC</p>	<ul style="list-style-type: none"> • Yield signs (RA-2) recommended on all approach streets • Chevron alignment signs (WA-9) required • Central island includes small raised/landscaped portion with mountable outer portion for larger vehicles • Inscribed circle diameter of 30 m or less • When used, splitter islands can be raised, traversable, or flush • Specific geometric requirements provided in Section 4.3.1 A. of the TAC Traffic Calming Design Guide • Guidelines for pedestrian and bicycle requirements are also available in the TAC Traffic Calming Design Guide • Design shown in Figure 4.11 of TAC Traffic Calming Design Guide • Preliminary estimation of installation costs – High • Reference: TAC Traffic Calming Design Guide

TRAFFIC CALMING MEASURE	EXAMPLE	DESIGN CRITERIA
<p>Roundabout</p>	 <p>Source: Canadian Institute of Transportation Engineers</p>	<ul style="list-style-type: none"> • Preliminary estimation of installation costs – High • Reference: TAC Geometric Design Guide
<p>Full Lane Transverse Bars</p> <p>Description: Series of parallel pavement markings that extend across the entire travel lane to create the illusion of increasing speed by decreasing the space between them¹.</p>	 <p>Source: Federal Highway Administration</p>	<ul style="list-style-type: none"> • Recommended spacing is the same as what is provided for Peripheral Transverse Bars in the TAC Traffic Calming Design Guide • Spacing for roadways with a posted speed of 80 km/h down to 60 km/h: 4 m spacing between bars 1 to 6, 5 m spacing between bars 7 to 12 • Spacing for roadways with a posted speed of 60 km/h down to 40 km/h: 3 m spacing between bars 1 to 7, 4 m spacing between bars 8 to 12 • Spacing for roadways with a posted speed of 50 km/h down to 30 km/h: 2 m spacing between bars 1 to 4, 3 m spacing between bars 5 to 12 • Maximum width of 0.3 m, extended across most of the travelled lane width • Preliminary estimation of installation costs – Medium • Reference: City of Kingston – TAC Traffic Calming Design Guide, Traffic Calming Guidelines (https://www.cityofkingston.ca/documents/10180/15058/Traffic+Calming+Guidelines.pdf/804c309a-7195-ba08-e20e-dd17349f0a53?t=1629998980890)



TRAFFIC CALMING MEASURE	EXAMPLE	DESIGN CRITERIA
<p>Peripheral Transverse Bars</p> <p>Description: Variation of full lane transverse bars but they are placed along the side of the travel lane.</p>	 <p>Source: Federal Highway Administration</p>	<ul style="list-style-type: none"> • Series of white transverse lines on both sides of the lane perpendicular to the centerline, edge line, or lane line • Maximum width of 0.3 m, maximum length (extended into the lane) of 0.5 m • Spacing for roadways with a posted speed of 80 km/h down to 60 km/h: 4 m spacing between bars 1 to 6, 5 m spacing between bars 7 to 12 • Spacing for roadways with a posted speed of 60 km/h down to 40 km/h: 3 m spacing between bars 1 to 7, 4 m spacing between bars 8 to 12 • Spacing for roadways with a posted speed of 50 km/h down to 30 km/h: 2 m spacing between bars 1 to 4, 3 m spacing between bars 5 to 12 • Design shown in Figure 4.20 and Tables 4.1, 4.2, and 4.3 of TAC Traffic Calming Design Guide • Preliminary estimation of installation costs – Medium • Reference: TAC Traffic Calming Design Guide
<p>Converging Chevrons</p> <p>Description: Variation of full lane transverse bars but arranged in a converging chevron pattern.</p>	 <p>Source: Ruidoso Traffic Calming Design Guides</p>	<ul style="list-style-type: none"> • Size of converging chevrons varies depending on width of travel lane • Following equation can be used as a guideline for spacing: $L = v_1 * t_b + \frac{(v_1^2 - v_2^2)}{2a}$ <p style="text-align: center;">FIGURE 148. EQUATION. DECREASING VELOCITY LINEAR EQUATION</p> <p>Where:</p> <p>L = distance between successive pair of transverse bar pairs pair₁ and pair₂ (ft) v₁ = speed at pair 1 (ft/s) (speed at the first pair is the transition zone speed; speed at the last pair is the entrance posted speed limit) v₂ = speed at pair 2 t_b = perception reaction time (0.5 s) a = deceleration rate (ft/s²)</p> <ul style="list-style-type: none"> • Requires regular maintenance/reapplication • Preliminary estimation of installation costs – Medium • Reference: City of Kingston – Traffic Calming Guideline (https://www.cityofkingston.ca/documents/10180/15058/Traffic+Calming+Guidelines.pdf/804c309a-7195-ba08-e20e-dd17349f0a53?t=1629998980890); FHWA (https://www.fhwa.dot.gov/publications/research/safety/15030/009.cfm)

TRAFFIC CALMING MEASURE	EXAMPLE	DESIGN CRITERIA
<p>Dragon Teeth Pavement Markings</p> <p>Description: Variation of full lane transverse bars but use a series of triangular markings on the edge of the travel lane.</p>	 <p>Source: City of Ottawa</p>	<ul style="list-style-type: none"> • Size and Spacing: Each triangular pavement marking is typically 2 ft wide, 2 ft tall, and spaced 5 ft apart from adjacent pair of teeth • No specific constraint to number of teeth (typically 9-17 pairs of teeth are used) • Requires regular maintenance/application • Preliminary estimation of installation costs – Medium • Reference: City of Kingston – Traffic Calming Guideline (https://www.cityofkingston.ca/documents/10180/15058/Traffic+Calming+Guidelines.pdf/804c309a-7195-ba08-e20e-dd17349f0a53?t=1629998980890)
<p>On Road Sign (Innisfil Pilot Study)</p> <p>Description: Pavement markings that provide information to drivers.</p>	 <p>Source: Queen Street at Glenfern</p>	<ul style="list-style-type: none"> • Examples of messaging: set speed limit, “SLOW”, school crossing/school ahead • Requires regular maintenance/reapplication • Preliminary estimation of installation costs – Medium • Reference: City of Ottawa Traffic Calming Design Guidelines (https://documents.ottawa.ca/sites/documents/files/traffic_calm_design_guide_en.pdf); City of Kingston – Traffic Calming Guidelines (https://www.cityofkingston.ca/documents/10180/15058/Traffic+Calming+Guidelines.pdf/804c309a-7195-ba08-e20e-dd17349f0a53?t=1629998980890)



TRAFFIC CALMING MEASURE	EXAMPLE	DESIGN CRITERIA
<p>Lane Narrowing (Innisfil Pilot Study)</p> <p>Description: Reducing lane widths using pavement markings or features so that drivers perceive the roadway as less comfortable and reduce their speeds.</p>	 <p>Source: King Township Traffic Calming</p>	<ul style="list-style-type: none"> • Lane widths can be reduced to a minimum width of 3.0 m • Use on roads with a grade of 8% or less • Preliminary estimation of installation costs – High • Reference: Geometric Design Guide for Canadian Roads: Chapter 6 – Pedestrian Integrated Design; City of Kingston – Traffic Calming Guidelines (https://www.cityofkingston.ca/documents/10180/15058/Traffic+Calming+Guidelines.pdf/804c309a-7195-ba08-e20e-dd17349f0a53?t=1629998980890)
<p>Curb Extension</p> <p>Description: An extension of the curb to narrow the roadway.</p>	 <p>Source: National Association of City Transportation</p>	<ul style="list-style-type: none"> • Lane width approaching intersection reduced to 3 m for maximum effectiveness (minimum of 2.5 m where permitted) • Departure lane width remain at 3 m for a minimum total width of 5.5 m • Minimum clear offset of 5 m required when used on diagonally opposite corners of intersection • Curb extension at intersection 5 to 7 m in length (or long enough to accommodate longest bus when used at bus stops) • At mid-block – 3 m lane widths (minimum of 2.75 m where permitted) for a total street width of 5.5 m • At mid-block – 7 m length minimum • Object Markers (WA-36) optional • Delineation Markers (WA-37) may be acceptable alternative to Object Markers • Design shown in Figure 4.13 of TAC Traffic Calming Design Guide • Preliminary estimation of installation costs – High • Reference: TAC Traffic Calming Design Guide



TRAFFIC CALMING MEASURE	EXAMPLE	DESIGN CRITERIA
<p>Road Diet Change</p> <p>Description: Reconfiguration of roadway that reduces the number of lanes and allocates the reclaimed space for other uses.</p>	 <p>The diagram is split into two parts: 'BEFORE' and 'AFTER'. In the 'BEFORE' part, a four-lane road is shown with two lanes in each direction, separated by a double yellow center line. In the 'AFTER' part, the road has been reconfigured into a three-lane road with a center turn lane. The center turn lane is a narrow lane with a dashed yellow center line and a solid yellow edge line. Arrows indicate traffic flow: two lanes in each direction in the 'BEFORE' state, and one through lane in each direction plus a center turn lane in the 'AFTER' state.</p> <p>Source: The Kinder Institute for Urban Research</p>	<ul style="list-style-type: none"> • Applicable for existing roadways with 4 or more lanes • Geometric and Operation Design available from the FHWA Road Diet Information Guide – Section 4 • Preliminary estimation of installation costs – High • Reference: FHWA Road Diet Informational Guide Road Diet Informational Guide - Safety Federal Highway Administration (dot.gov)
<p>Raised Median Island</p> <p>Description: Elevated median constructed along the centerline of a two-way road that reduces the lane widths.</p>	 <p>The photograph shows a two-way road with a raised median island in the center. The island is a concrete structure that narrows the lanes on either side. There are yellow diamond-shaped advance warning signs for a narrow lane ahead on both sides of the road. A 'Keep Right' sign (RB-25) is visible at the end of the median section. The road is paved, and there are trees and a building in the background.</p> <p>Source: Federal Highway Association</p>	<ul style="list-style-type: none"> • Minimum width of 3.5 m for single lane adjacent to median island • Length of median section at intersection or mid-block crossing is 5 to 7 m • Minimum width of median is 1.5 m • Keep Right sign (RB-25) required at each end of median section • Object Marker (WB-36L) is optional • Stopping Prohibited signs (RB-55) required in the area of the median island • Crosswalk signs (RA-4) required for mid-block crosswalk applications • Geometric requirements available in Section 4.4.3 A. of TAC Traffic Calming Design Guide • Design shown in Figure 4.15 of TAC Traffic Calming Design Guide • Preliminary estimation of installation costs – High • Reference: TAC Traffic Calming Design Guide



TRAFFIC CALMING MEASURE	EXAMPLE	DESIGN CRITERIA
<p>Vertical Centerline Treatment (Innisfil Pilot Study)</p> <p>Description: Use of vertical treatments on the centerline to create a center median (flexible post-mounted delineators or raised pavement markers).</p>	 <p>Source: Iowa State University Institute for Transportation Research</p>	<ul style="list-style-type: none"> • Used on roads with a grade of 8% or less • Vertical treatments can be flexible post-mounted delineators or raised pavement markers • Installed on a temporary/seasonal basis • Preliminary estimation of installation costs – Medium • Reference: Ottawa Traffic Calming Design Guidelines (https://documents.ottawa.ca/sites/documents/files/traffic_calm_design_guide_en.pdf); City of Kingston – Traffic Calming Guidelines (https://www.cityofkingston.ca/documents/10180/15058/Traffic+Calming+Guidelines.pdf/804c309a-7195-ba08-e20e-dd17349f0a53?t=1629998980890)
<p>On-Street Parking</p> <p>Description: Variation of lane narrowing using on-street parking.</p>	 <p>Source: City of Toronto</p>	<ul style="list-style-type: none"> • Should only be used where cyclist volumes are low, and cyclists can use vehicular travel lanes • Site constraints include driveway locations, fire hydrant locations, etc. • Should not be used as form of curb extension at or near intersections • Parking Prohibited signs (RB-51) used in areas of minimum pavements width and adjacent to intersections • Minimum geometric requirements shown in Figure 4.14 of the TAC Traffic Calming Design Guide • Preliminary estimation of installation costs – Low • Reference: TAC Traffic Calming Design Guide



TRAFFIC CALMING MEASURE	EXAMPLE	DESIGN CRITERIA
<p>Speed Display Devices</p> <p>Description: Interactive signs that display the speed of an oncoming vehicle by using radar speed detectors.</p>	 <p>Source: University of New Brunswick</p>	<ul style="list-style-type: none"> • Post or trailer mounted • Use as a stand-alone system or part of a broader traffic calming strategy • Should not be used where other devices and roadway environments are already making intensive demands on driver attention (i.e., close to traffic control devices, pedestrian crossings, etc.) • Most beneficial over limited distances • TAC Application Guidelines for Speed Display Devices has guidelines for specific applications – school zones • TAC Application Guidelines for Speed Display Devices – Section 6 contains Design of Display guidelines, Section 7 contains Installation information • Active display text must be a minimum of 200 mm high and clearly visible from entire approach lane from a distance of 45 m to 200 m • For urban or residential areas: ideally placed between 300 mm to 2 m from curb lane • For rural areas: ideally placed 2 to 4 m from edge of outer travel lane • Preliminary estimation of installation costs – Low to Medium • Reference: TAC Application Guidelines for Speed Display Devices; City of Kingston – Traffic Calming Guidelines (https://www.cityofkingston.ca/documents/10180/15058/Traffic+Calming+Guidelines.pdf/804c309a-7195-ba08-e20e-dd17349f0a53?t=1629998980890)
<p>Vehicle Activated Signs</p> <p>Description: Interactive signs that alert drivers of a hazard ahead when their speed is detected to be above a threshold.</p>	 <p>Source: Trafficlogix</p>	<ul style="list-style-type: none"> • Post or trailer mounted • Use as a stand-alone system or part of a broader traffic calming strategy • Should not be used where other devices and roadway environments are already making intensive demands on driver attention (i.e., close to traffic control devices, pedestrian crossings, etc.) • Most beneficial over limited distances • TAC Application Guidelines for Speed Display Devices has guidelines for specific applications – school zones, narrow lanes and bridges, highway community entry, neighbourhood traffic calming, curves, work zones • TAC Application Guidelines for Speed Display Devices – Section 6 contains Design of Display guidelines, Section 7 contains Installation information • Active display text must be a minimum of 200 mm high and clearly visible from entire approach lane from a distance of 45 m to 200 m • For urban or residential areas: ideally placed between 300 mm to 2 m from curb lane • For rural areas: ideally placed 2 to 4 m from edge of outer travel lane • Preliminary estimation of installation costs – Low • Reference: TAC Application Guidelines for Speed Display Devices; City of Kingston – Traffic Calming Guidelines


TRAFFIC CALMING MEASURE	EXAMPLE	DESIGN CRITERIA
		https://www.cityofkingston.ca/documents/10180/15058/Traffic+Calming+Guidelines.pdf/804c309a-7195-ba08-e20e-dd17349f0a53?t=1629998980890
<p>Fixed Speed Enforcement</p> <p>Description: Permanent cameras that photograph vehicles travelling at unsafe/high speeds without requiring a law enforcement officer present.</p>	 <p>Source: Trafficlogix</p>	<ul style="list-style-type: none"> • To be installed as per manufacturer requirements • Preliminary estimation of installation costs – High
<p>Aircraft/Drone Radar Enforcement</p> <p>Description: Aircrafts or drones that monitor the speeds of vehicles on highways/freeways using transverse pavement markings.</p>	 <p>Source: NNTC Innovative Technology Company</p>	<ul style="list-style-type: none"> • To be installed as per manufacturer requirements • Preliminary estimation of installation costs – Medium



TRAFFIC CALMING MEASURE	EXAMPLE	DESIGN CRITERIA
<p>Mobile Speed Enforcement</p> <p>Description: Radar photography units mounted in mobile vehicles or trailers that are used in areas that require speed enforcement.</p>	 <p>Source: Trafficlogix</p>	<ul style="list-style-type: none"> • To be installed as per manufacturer requirements • Preliminary estimation of installation costs – Medium
<p>Speed Watch Programs</p> <p>Description: Volunteers/residents help monitor traffic and record license plates of vehicles that are speeding. Letters may be sent to vehicle owners alerting them of their excessive speeding.</p>	 <p>Source: SRTS Guide – Safe Routes Info</p>	<ul style="list-style-type: none"> • To be implemented based on community requirements • Preliminary estimation of installation costs – Low



TRAFFIC CALMING MEASURE	EXAMPLE	DESIGN CRITERIA
<p>Pace Car Program</p> <p>Description: Community awareness measure where local drivers sign a pledge to drive within the speed limit, effectively becoming mobile traffic calming devices. Bumper stickers are used to alert other drivers.</p>	 <p>Source: Cochrane Neighbourhood, CBC Calgary</p>	<ul style="list-style-type: none"> • In Canada main concept is to encourage drivers to sign a pledge and display a sign on car rear window or bumper to show commitment to drive within the speed limit • Preliminary estimation of installation costs – Medium • Reference: City of Kingston – Traffic Calming Guidelines (https://www.cityofkingston.ca/documents/10180/15058/Traffic+Calming+Guidelines.pdf/804c309a-7195-ba08-e20e-dd17349f0a53?t=1629998980890)
<p>Targeted Education Campaign</p> <p>Description: Community awareness measure where programs, event, or media campaigns are used to educate and raise awareness of road safety issues.</p>	 <p>Source: King Township Traffic Calming Strategy</p>	<ul style="list-style-type: none"> • To be implemented based on community requirements • Preliminary estimation of installation costs – High




TRAFFIC CALMING MEASURE	EXAMPLE	DESIGN CRITERIA
<p>Active and Safe Routes to School Program</p> <p>Description: A community-based program that promotes the use of active transportation for school trips and addresses traffic safety issues.</p>	 <p>Source: City of Toronto</p>	<ul style="list-style-type: none"> • To be implemented based on community requirements • Preliminary estimation of installation costs – High • Reference: The Canadian School Travel Planning Toolkit (Guide-for-Facilitators-STP-Toolkit-May-2018-En-1.pdf (ontarioactiveschooltravel.ca))
<p>Coloured/Textured Pavement</p> <p>Description: Pavement that incorporates texture, patterned, or coloured surfaces that contrasts with the surrounding roadway.</p>	 <p>Source: City of Vaughan</p>	<ul style="list-style-type: none"> • For textured crosswalks: <ul style="list-style-type: none"> ○ Minimum crosswalk width is 2.5 m (3-4 m is typical in urban areas with high pedestrian activity) ○ Parallel standard crosswalk lines that are 0.1-0.2 m wide are required to delineate outside edges of crosswalk if measure is implemented at a controlled crossing ○ If zebra crosswalk markings are used, configuration typically consists of block markings 0.6 m and spaced at 0.6 m • Preliminary estimation of installation costs – Medium • Reference: City of Kingston – Traffic Calming Guidelines (https://www.cityofkingston.ca/documents/10180/15058/Traffic+Calming+Guidelines.pdf/804c309a-7195-ba08-e20e-dd17349f0a53?t=1629998980890) • For coloured pavement: <ul style="list-style-type: none"> ○ Must be accompanied by appropriate regulatory signage ○ Maintain minimum required friction characteristics of pavement ○ Use the same colour for the same purpose to convey a message to roadway users • Preliminary estimation of installation costs – Medium • Reference: MUTCD




TRAFFIC CALMING MEASURE	EXAMPLE	DESIGN CRITERIA
<p>Transverse Rumble Strips</p> <p>Description: Grooves in the pavement or raised bars closely spaced at regular intervals on a roadway that create noise and vibration for a vehicle travelling over them.</p>	<p>Source: Center for Transportation Research and</p>  <p>Education – Iowa State University</p>	<ul style="list-style-type: none"> • Reference the Transportation Association of Canada - Best Practice Guidelines for the Design and Application of Transverse Rumble Strips • Preliminary estimation of installation costs – Medium • Note: These rumble strips in neighbourhoods can result in noise complaints.
<p>Sidewalk Extension/Texture d Crosswalk</p> <p>Description: Coloured/textured pavement applied to a crosswalk.</p>	 <p>Source: Endurablend Polymer Cement Surfacing</p>	<ul style="list-style-type: none"> • For sidewalks located at the curb line on approaches to intersection <ul style="list-style-type: none"> ○ Sidewalk must be lowered to 15 mm above the intersecting street ○ Slope of sidewalk transition approaching intersection must not exceed 6% • For sidewalk offset from the curb line on approaches to intersection <ul style="list-style-type: none"> ○ Sidewalk can be lowered to match intersection street ○ 40 mm curb face recommended • Design shown in Figure 4.19 of TAC Traffic Calming Design Guide • Preliminary estimation of installation costs – High • Reference: TAC Traffic Calming Design Guide



TRAFFIC CALMING MEASURE	EXAMPLE	DESIGN CRITERIA
<p>Directional Closures</p> <p>Description: Barrier that extends to the centerline of the roadway that prohibits one direction of traffic.</p>	 <p>Source: U.S. Department of Transportation Federal Highway Administration</p>	<ul style="list-style-type: none"> • Exit-only directional closure <ul style="list-style-type: none"> ○ Island width must be sufficient so traffic going straight through would conflict with opposing traffic ○ Dimensional requirements shown in Figure 4.21(a) of TAC Traffic Calming Design Guide ○ Signage – Right or Left Turn Only sign (RB-43) and Entry Prohibited signs (RB-23) required; Except Bicycles supplementary tab sign (RB-98) required for bicycle traffic; One-way signs (RB-21) must be used on the cross-street; Object Markers (WA-36) to be used • Entrance-only directional closure <ul style="list-style-type: none"> ○ Best implemented with hammerhead or cul-de-sac area ○ Dimensional requirements shown in Figure 4.21(b) of TAC Traffic Calming Design Guide ○ Signage – RB-21, RB-43, and WA-36 signs are NOT required; Cul-de-sac sign (ID-21) and Checkerboard sign (WA-8) are required • Openings in the closures to accommodate bicycle traffic should be approximately 1.5 min width • Preliminary estimation of installation costs – Medium • Reference: TAC Traffic Calming Design Guide
<p>Intersection Channelization</p> <p>Description: Raised islands at intersections used to obstruct certain movements and physically direct traffic through the intersection.</p>	 <p>Source: City of Campbell River Neighbourhood Traffic Management Procedures</p>	<ul style="list-style-type: none"> • Minimum island size of 6-10 m² required for pedestrian refuge • Selected right-turn radius should create a divisional island large enough to discourage left-turn and through movements • Width of turning lane designed to only accommodate vehicles that use segment of road on a regular basis • Effectiveness improved with an island size of 10 m² or greater • Signage – Entry Prohibited sign (RB-23) required on island facing the straight-through movement no longer permitted; Right or Left Turn Only lane sign (RB-43) on that approach; Left Turn Prohibited Sign (RB-11L) should be used on the cross-street on the far side of the intersection as well as the end of the divisional island; Keep Right sign (RB-25) and Object Marker (WA-36) placed on end of divisional island; Object Marker (WA-36) required at the corner of island facing traffic turning right from collector • Design shown in Figure 4.24 of TAC Traffic Calming Design Guide • Preliminary estimation of installation costs – High • Reference: TAC Traffic Calming Design Guide

TRAFFIC CALMING MEASURE	EXAMPLE	DESIGN CRITERIA
<p>Raised Median Through Intersection</p> <p>Description: An island constructed on the centreline of a two-way road through an intersection used to restrict left turns and through movements to/from the intersecting roadway.</p>	 <p>Source: National Association of City Transportation Officials</p>	<ul style="list-style-type: none"> • Geometric Requirements: <ul style="list-style-type: none"> ○ Raised portion of median minimum width – 1.5 m ○ Single lane width on both sides beyond intersection – 3.5 m ○ Lane width adjacent to median – determined by turning vehicle requirements ○ Median extends 5-7 m beyond crosswalk outer edges ○ Reference Figure 4.25 in TAC Traffic Calming Design Guide • Signage – Keep Right sign (RB-25) and Object Markers (WA-36) for two ends of median; U-Turn Prohibited sign (RB-16) may be required; either Right Turn Required (RB-14R) or On-Way sign (RB-21) at center of protected cross-street on median facing both approaches; Stopping Prohibited signs (RB-55) may be required • Pavement markings – reference MUTCD • Preliminary estimation of installation costs – High • Reference: TAC Traffic Calming Design Guide, MUTCD
<p>Right-In Right-Out Island</p> <p>Description: A raised triangular island at an intersection that restricts left turns and through movements to/from an intersection road.</p>	 <p>Source: National Association of City Transportation Officials</p>	<ul style="list-style-type: none"> • Intersection radii should create divisional island large enough to discourage through and left turn movements • Minimum island for pedestrian refuge = 6-10 m² • Design shown in Figure 4.26 of TAC Traffic Calming Design Guide • Signage – Right Turn Only Lane sign (RB-41R) for protected intersection approach in advance of intersection and on divisional island; Keep Right sign (RB-25) and an Object Marker (WA-36) on end of divisional island facing approach; Entry Prohibited sign (RB-23) on divisional island facing prohibited through movement; Left Turn Prohibited sign (RB-11L) on the cross-street and divisional island facing prohibited left turning traffic; Right or Left Turn Only sign (RB-43) on intersection approach facing divisional island • Preliminary estimation of installation costs – High • Reference: MUTCD for signage, TAC Traffic Calming Design Guide

TRAFFIC CALMING MEASURE	EXAMPLE	DESIGN CRITERIA
<p>Diverter</p> <p>Description: Raised barrier placed diagonally across an intersection that diverts traffic to turn rather than going straight through the intersection.</p>	 <p>Source: Global Designing Cities Initiative</p>	<ul style="list-style-type: none"> • Diversion alignment must make adequate provision for the turning paths of all vehicles • Parking should not be permitted within limit of diversion • Typical diverter requirements shown in Figure 4.22 of TAC Traffic Calming Design Guide • Special requirements for landscaping and/or bollards for areas where cyclists or sidewalks are present • Options available to accommodate emergency vehicles (break-away or lockable bollards or lockable gates) • Signage – Single Curve signs (WA-2) to advise motorists of turning requirement; Parking Prohibited sign (RB-51) • Preliminary estimation of installation costs – High • Reference: TAC Traffic Calming Design Guide
<p>Full Closure</p> <p>Description: Barrier that covers the entire width of a road restricting all vehicular traffic.</p>	 <p>Source: Roxborough and Province, City of Vancouver</p>	<ul style="list-style-type: none"> • Geometric requirements shown in Figure 4.23 in TAC Traffic Calming Design Guide • Must include provision of some form of cul-de-sac at end of closed roadway • Bollards or trees placed to discourage continued off-road travel to/from severed street • Rolled or mountable curbs recommended adjacent to bicycle lanes • Signage – Cul-de-sac sign (ID-31) required at entrance to full closure block; Checkboard sign (WA-8) recommended at center of severed roadway; Parking Prohibited signs (RB-51) may be required • Preliminary estimation of installation costs – Medium to High • Reference: TAC Traffic Calming Design Guide

TRAFFIC CALMING MEASURE	EXAMPLE	DESIGN CRITERIA
<p>Gateways</p> <p>Description: A combination of traffic calming measures that provides a visual cue to help road users identify a transitional zone.</p>	 <p>Source: Global Designing Cities Initiative</p>	<ul style="list-style-type: none"> • Must be designed at appropriate scale and significance to attract drivers attention • Includes fixed roadside and/or overhead features • First determine physical space, utility, electrical, and other options before selecting most feasible gateway option • Preliminary estimation of installation costs – High • Reference: City of Ottawa Traffic Calming Design Guidelines
<p>Shared Space</p> <p>Description: A design concept where the priority is shifted from vehicular traffic to active transportation users, who are free to cross anywhere.</p>	 <p>Source: Global Designing Cities Initiative</p>	<ul style="list-style-type: none"> • Preliminary estimation of installation costs – High • To be implemented based on community requirements
<p>LED Pavement Marking</p> <p>Description: LEDs placed in the pavement that display a variety of messages to drivers.</p>	 <p>Source: TAPCO Safe Travels</p>	<ul style="list-style-type: none"> • Preliminary estimation of installation costs – Medium • To be installed as per manufacturer requirements

TRAFFIC CALMING MEASURE	EXAMPLE	DESIGN CRITERIA
<p>Traffic Calmed Neighbourhood Sign</p> <p>Description: Signs placed in conjunction with traffic calming measures that raise awareness that it is a traffic calmed area.</p>	 <p>Source: CBC City of Ottawa</p>	<ul style="list-style-type: none"> • Used to inform drivers that traffic calming measures are implemented within a neighbourhood • The ID-32 sign is always used in conjunction with the ID-32S supplementary tab sign • Installed at the entrance to the neighbourhood • Preliminary estimation of installation costs – Low • Reference: MUTCD (A4.6.6 Traffic-Calmed Neighbourhood Sign (ID-32))
<p>Community Safety Zones</p>	 <p>Source: City of Toronto</p>	<ul style="list-style-type: none"> • All zones require a sign with a BEGINS tab and an ENDS tab indicating the start and end of a designated community safe zone • Other signs can be used within the zone • Former sign is TC-46 from Ontario MUTCD • Preliminary estimation of installation costs – Low • Reference: Ontario MUTCD (Book 5 part 1.pmd (civicweb.net))
<p>Stop Signs</p>	 <p>Source: The Centre for Active Transportation</p>	<ul style="list-style-type: none"> • Preliminary estimation of installation costs – Low • Reference MUTCD

TRAFFIC CALMING MEASURE	EXAMPLE	DESIGN CRITERIA
<p>Maintenance and Signage</p>	 <p>Source: Minnesota's Best Practices for Traffic Sign Maintenance/Management Handbook</p>	<ul style="list-style-type: none"> • From MUTCD: <ul style="list-style-type: none"> ○ Signs should be kept clean, legible, and in proper position ○ Repair/replace damaged signs ○ Establish schedule for inspection (day and night), cleaning, and replacement ○ Remove weeds, shrubbery, construction materials, or piled snow that may obstruct sign • Preliminary estimation of installation costs – Medium • Reference: MUTCD
<p>Temporary/ Flexible Median</p> <p>Description: A temporary/flexible structure installed in the centreline of a roadway to act as a removable median.</p>	 <p>Source: Maple Ridge, BC Traffic Calming Policy</p>	<ul style="list-style-type: none"> • Used on roads with a grade of 8% or less • Vertical treatments are typically flexible post-mounted delineators • Installed on a temporary/seasonal basis • Preliminary estimation of installation costs – Medium <p>Reference: Ottawa Traffic Calming Design Guidelines (https://documents.ottawa.ca/sites/documents/files/traffic_calm_design_guide_en.pdf); City of Kingston – Traffic Calming Guidelines (https://www.cityofkingston.ca/documents/10180/15058/Traffic+Calming+Guidelines.pdf/804c309a-7195-ba08-e20e-dd17349f0a53?t=1629998980890)</p>

Note references:

¹ - Ottawa Traffic Calming Design Guidelines

² - Transportation Association of Canada (TAC) Canadian Guide to Traffic Calming

Appendix E:

Consultation, Education, and Engagement Plan (CEEP) Materials

**Innisfil Traffic Calming Project
Consultation Summary**

Attachment A:

Community Education and Engagement Plan

Town of Innisfil

Traffic Calming Strategy

Type of Document
Community Education and Engagement Plan

Project Number
BRM-606266-A0

Prepared By
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Date Submitted
December 03, 2020



EXP Quality System Checks			
Project No.:	BRM-606266-A0	Date:	December 3, 2020
Type of Document:	Community Education and Engagement Plan	Revision No.:	3
Prepared By:	JL Gaudet		
Reviewed By:	Y Monereau		

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1. Introduction

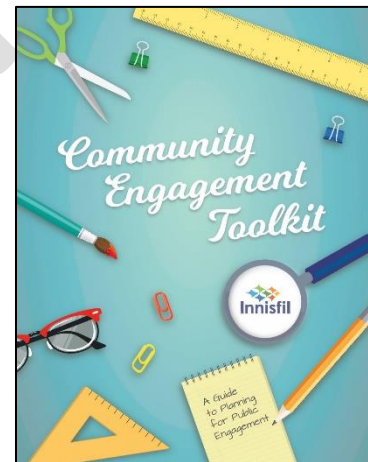
The Town of Innisfil has retained EXP to develop strategies for updating its traffic Calming Policy and to improve community safety for those living in and visiting the Town. The resulting traffic calming measures are to include a blend of the best proven techniques, new forward-thinking technologies, and custom-made strategies to address the community's needs.

There are six key tasks for this project, and they include:

- **Task A.1: Strategy Outline Report** - Review of Background Information, Best Practices and Emerging Technologies.
- **Task A.2 Pilot Project Program Implementation and Summary Report** - Development, implementation and evaluation of project pilots.
- **Task A.3: Design Guide for Traffic Calming** - Developing traffic calming standards and warrants;
- **Task A.4: Community Education and Engagement Plan** - Developing a Community Education and Engagement Plan (CEEP) to engage stakeholders in this process.
- **Task A.5: 10-Year Traffic Calming Program** - Developing implementation guidelines for traffic calming.
- **Task A.6: Traffic Calming Strategy Report**- Preparation of a report to summarize the outcomes of this study.

This CEEP was developed in consideration of the Town's Community Engagement Toolkit and forms the start of Task A.4. The CEEP describes how the general public and stakeholders will be engaged throughout the project. Its objectives include:

- Communicate the purpose and objectives of this project with the general public and key stakeholders;
- Engage key technical stakeholders in this process to obtain their inputs and feedback; and
- Consult with the general public to obtain their feedback on their traffic-related safety issues and the proposed solutions, for the purpose of feeding into the Traffic Calming Strategy.

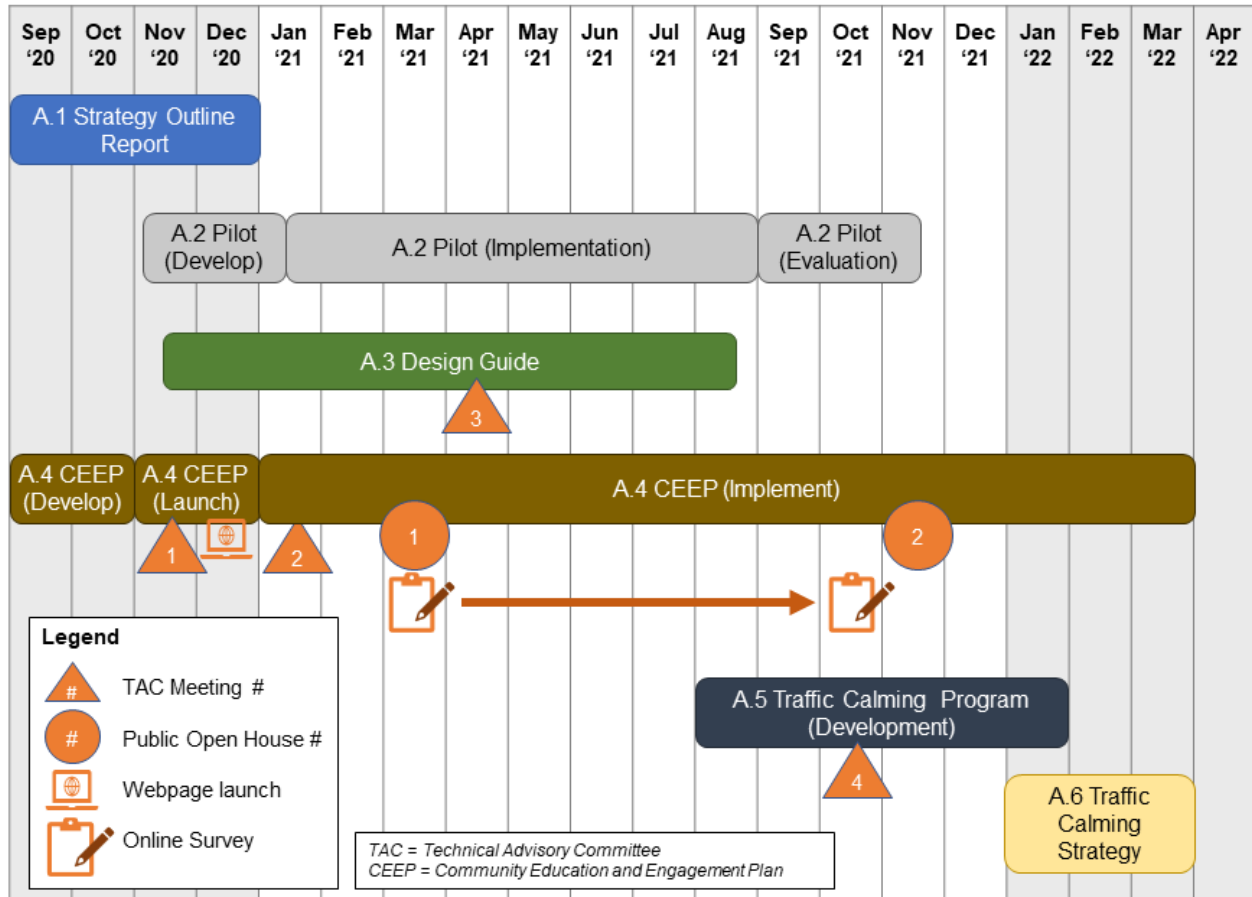


This community engagement will be important for the project as the public and interested stakeholders are context experts in the topic of traffic safety. The Town's Community Engagement Toolkit describes Context Experts as "... residents who experientially know about the issue and feel the impact it has on their everyday lives. These are individuals who know the community best and experience it day to day." The experiences and observations they will share with the project team will ensure their priority traffic safety issues are identified and addressed. The community's participation in this process will give them a better understanding of how traffic calming is managed in the Town. It will also allow them to influence the decision-making process on what traffic calming measures are selected and how they are implemented in their community.

Figure 1 illustrates the approximate timeline of the project tasks and key engagement activities. The

engagement activities are discussed in greater detail in Section 3.

Figure 1: Project Timeline



Note: Online survey would run for approximately 3 to 5 weeks within the period indicated. The exact timing of the survey will depend on the survey topics.

2. Stakeholder Groups

This project will include engagement of the general public and key stakeholders to communicate the objectives of this project and to obtain their feedback in the program development. Table 1 below presents a sample of proposed target groups. A full list of stakeholders is contained in the project's Stakeholder Register. For each target group, engagement objectives and associated engagement initiatives are outlined.

Table 1: Summary of Stakeholder Groups and Engagement Initiatives

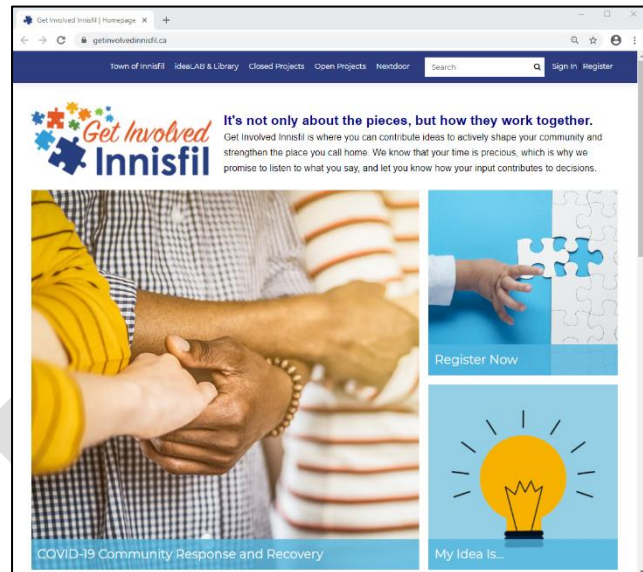
Sample Target Groups	Engagement Objectives	Engagement Initiatives
General Public <ul style="list-style-type: none"> Residents of Innisfil Commuters Local Businesses (including trucking and shipping businesses) Local residential community association(s) 	<ul style="list-style-type: none"> Identify traffic safety issues and concerns Obtain feedback on traffic calming measures Obtain buy-in on proposed traffic calming strategy 	<ul style="list-style-type: none"> Project Notices Information on Project <i>Get Involved Innisfil</i> Webpage Public Open House (POH) Online Survey
Local Organizations <ul style="list-style-type: none"> County and Catholic district school boards (in particular relevant committees) Schools in the Town of Innisfil Bicycle associations/groups Community watch Local seniors' associations Community Safety Groups Safe Route to school Advocacy groups Utility Companies 	<ul style="list-style-type: none"> Identify traffic safety issues and concerns Obtain feedback on traffic calming measures Obtain buy-in on proposed traffic calming strategy 	<ul style="list-style-type: none"> Project Notices Information on Project <i>Get Involved Innisfil</i> Webpage POH Technical Advisory Committee (where applicable) Online Survey Meetings, as needed On-going correspondence
Municipal Departments, Agencies and Stakeholders Municipal <ul style="list-style-type: none"> Town of Innisfil (staff, councillors, Capital Engineering, Development Engineering, Planning, and Operations, legal) Simcoe County (staff, councillors, Public Health, legal) Municipal committees: <ul style="list-style-type: none"> School Zone – Traffic Safety Advisory Committee Innisfil Youth Connex Committee Accessibility Advisory Committee Provincial <ul style="list-style-type: none"> Ministry of Municipal Affairs and Housing Other <ul style="list-style-type: none"> South Simcoe Police Innisfil Fire and Rescue County of Simcoe Paramedic Services Simcoe Muskoka District Health Unit 	<ul style="list-style-type: none"> Keep apprised of project, schedule, alternatives and decisions Identify issues and concerns Obtain buy-in/approvals Input into best practices and regulatory compliance 	<ul style="list-style-type: none"> Meetings (including Technical Advisory Committee) Project Notices Information on Project <i>Get Involved Innisfil</i> Webpage Ongoing correspondence as required

3. Engagement Activities

3.1. Project Webpage

A key element of this this engagement will be the posting of information about the project and pilot testing on a project webpage via the *Get Involved Innisfil* Website. This will include written information on the webpage as well as links to documents and reports, such as any relevant staff reports to council, existing relevant planning documents, or reports prepared for this project that are suitable for public consumption, among other items. EXP will work with the Town to develop this content, which may include:

- An overview of the project, including its purpose and why the Town is undertaking it;
- Project timeline;
- Contextual information, such as what traffic calming is and how it is managed by the Town;
- Project notifications;
- Online comment forms;
- An online survey; and
- Opportunities for public engagement, among other things.



The steps to implement the project webpage include:

- Prepare an outline for the initial website content, for the Town's review and posting;
- Town to confirm webpage requirements with the Town's Communications and Community Engagement Team / *Get Involved Innisfil* host;
- Prepare a schedule of topics and release dates; and
- Update the website as required.

3.2. Town of Innisfil Social Media

Where feasible, The Town will promote project activities through the Town's relevant social media platforms. These include:



- Facebook (<https://www.facebook.com/TownOfInnisfil/>);
- Twitter (<https://twitter.com/townofinnisfil>);
- Instagram (<https://www.instagram.com/townofinnisfil/?hl=en>);
- YouTube (https://www.youtube.com/channel/UCvnGbVPiftQjT8PmI2_2jpw); and
- Nextdoor (ca.nextdoor.com).

3.3. Technical Advisory Committee

A Technical Advisory Committee (TAC) will be formed to help guide the development of the Traffic Calming Strategy. Participation on the TAC would be invited to the following stakeholders:

- Town of Innisfil (in particular, staff from Capital Engineering, Development Engineering, Planning, and Operations);
- Town of Innisfil School Zone – Traffic Safety Advisory Committee;
- Accessibility Advisory Committee;
- County of Simcoe;
- South Simcoe Police;
- Innisfil Fire and Rescue;
- County of Simcoe Paramedic Services;
- Simcoe-Muskoka District Health Unit;
- Simcoe County District School Board
- Simcoe Muskoka Catholic District School Board;
- Community groups;
- Government agencies, as required; and
- Other possible stakeholders reviewed in consultation with the Town, such as representatives from local resident associations or parent councils at local schools.

Steps to implement the TAC include:

- Confirm the TAC invitation list, in consultation with Town staff;
- Develop a Terms of Reference (TOR) for the TAC, to ensure project team members and TAC invitees are clear on the role of the TAC;
- Develop and distribute the invitation package;
- Coordinate the TAC correspondence with the Town, to ensure a consistent message is communicated; and
- Develop an overall schedule for the TAC, indicating what consultation activities or topics would be undertaken at each meeting.

Given the current status of the COVID-19 pandemic, it is anticipated that all TAC meetings will be done through video or tele conference. Table 2 provides a summary of the anticipated timeframe for the TAC meetings and the topics to be addressed.

The TAC TOR is provided in Appendix A.

Table 2: TAC Meeting Summary

TAC Meeting #	Anticipated Timeframe	Anticipated Topics
#1	December 2020	<ul style="list-style-type: none"> • Introduction to project, including project objectives and process • Review of CEEP
#2	January 2021	<ul style="list-style-type: none"> • Review of Strategy Outline Report findings • Approach to Pilot Program • Selection of locations
#3	April 2021	<ul style="list-style-type: none"> • Input on Design Guide • Update on POH #1 planning • Update on online survey planning
#4	October 2021	<ul style="list-style-type: none"> • Input on 10-Year Traffic Calming Program • Update on POH #2 planning

3.4. Public Open Houses

Two POH's have been tentatively planned for this project. If in-person, each POH would provide the public and other interested stakeholders an opportunity to learn about the project and discuss their concerns, questions, and ideas with the municipal and consultant project team.

Note: If feasible, the Town may choose to hold multiple POH's on varying studies/community concerns on the same evening at the same location. This will be confirmed by the Town.

However, given the current situation with the COVID-19 pandemic, an in-person POH may be unsuitable. In that case, each POH would be replaced with an online narrated presentation. The narrated presentations would be hosted on the project webpage (see Section 3.1). This would provide the public and other interested stakeholders the ability to learn about the project at their convenience. The narrated presentation would also be accompanied by online forms for the public to submit comments and/or questions. This will allow them to share their concerns, questions, and ideas with the municipal and consultant project team. EXP will compile the comments and questions and populate information for a Frequently Asked Questions page for the project website.

Assuming the use of narrated presentations for the POH's, the steps for implementation include:

- **Presentation development**
 - Confirm the topics for discussion in the presentation (i.e., develop a presentation outline);
 - Confirm date for presentation to go "live";
 - Prepare the presentation for review with the Town;
 - Once confirmed, prepare the narration text for the Town's review;
 - Once confirmed, build the narrated presentation, including any necessary presentation animations;
 - Prepare any required online comment forms;
 - Review with Town and refine as necessary;
 - Provide to Town for posting on project webpage, to be uploaded for confirmed "live" date.

- **Webpage posting**
 - Confirm website posting and online comment form requirements with Town’s Communications and Community Engagement Team;
 - Prepare supporting webpage text;
 - Confirm “live” date with Town’s Communications and Community Engagement Team ;
 - Provide necessary text for online comment forms;
 - Provide online presentation files.
- **Community notification**
 - Prepare event notice in consultation with the Town’s Communications team and based on Town’s desired template, for Town’s review and approval;
 - Confirm notice distribution;
 - Distribute notice.
- **Feedback Follow-up**
 - Feedback from the public will be summarized for the project team’s review and consideration;
 - A “Frequently Asked Questions” (FAQ) document will be prepared providing responses to relevant questions asked through the Public Open Houses. The FAQ document will either be available as a downloadable PDF or included directly on the project webpage.

Details on the notice distribution are to be confirmed. A tentative approach to distribution of POH notices include:

- E-mail distribution to stakeholder list;
- Posting on project webpage and on the *Get Involved Innisfil* homepage;
- Promotion of event through Town’s social media; and
- Publication of notice in local newspaper and municipal publications, such as the Town and Library’s e-newsletters.

The anticipated timing of each POH is:

- POH #1: Late March 2021.
- POH #2: Late November 2021.

3.5. Online Survey

A three to five-week online survey will be used to consult with the broader general public about the project. Promotion of the online survey is to be determined, although opportunities for promotion include:

- Notification on project webpage and on the *Get Involved Innisfil* homepage;
- Through local stakeholder organizations (e.g., local school boards, TAC members);
- Town’s social media feeds (e.g., Twitter, Facebook);
- Notices (e.g., in newspaper or local municipal news, the Town and Library’s e-newsletters), etc.

The topics of the online survey will be determined in consultation with the Town's project team.

Possible topics include:

- Opinions on traffic safety concerns;
- Areas of notable concern; and
- Possible solutions, among other topics.

To avoid survey fatigue, it is anticipated that the survey would be short and focused and consist of approximately 8 to 10 questions. Prior to implementation, a review of the Town's current engagement projects would be undertaken to ensure there are no more than four other Town surveys underway.

The online survey platform is to be confirmed. However, the link for the survey would be posted on the Town's project webpage. One possible option for the survey platform is SurveyMonkey, while another is the Get Involved platform.

While the main avenue to complete the survey will be online, distribution of hard copies will be available upon request that can be completed and returned.

Steps to implement the survey include:

- Confirm survey goals, objectives and topics;
- Identify survey period, from go-live date to close;
- Prepare notice and promotion methods for online survey;
- Develop survey questions, for review by Town;
- Once confirmed, build online survey in preferred survey platform, for Town's review and testing;
- Once finalized, launch online survey via project webpage on survey start date;
- Upon request, distribute survey hardcopies;
- Distribute survey notifications prior to survey launch;
- Monitor survey and analyze results after survey end date;
- Once finalized, communicate survey results back to public.

The exact timing of the survey has not been confirmed. It would be launched at some point between Late March and Late October 2021. Once launched, it will run for approximately three to five weeks.

If it is found that the online survey is under-utilized, then use of a telephone or mail-in survey to gather additional input may be considered.

3.6. Stakeholder Register

A stakeholder register has been developed in consultation with the Town that includes stakeholder agencies, non-government organizations and interested members of the public, among others.

The results from the consultation program would be reviewed with the project team and incorporated into the Traffic Calming Strategy.

Appendix A: Technical Advisory Committee Terms of Reference

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Town of Innisfil Traffic Calming Strategy

Terms of Reference for Technical Advisory Committee

1. Introduction

The Town of Innisfil has retained EXP to develop a Traffic Calming Strategy, including updating its Traffic Calming Policy, outlining a variety of traffic calming projects, improving community safety for those living in and visiting the Town. The resulting traffic calming measures are to include a blend of the best proven techniques, new, forward-thinking technologies, and custom-made strategies to address the community's needs.

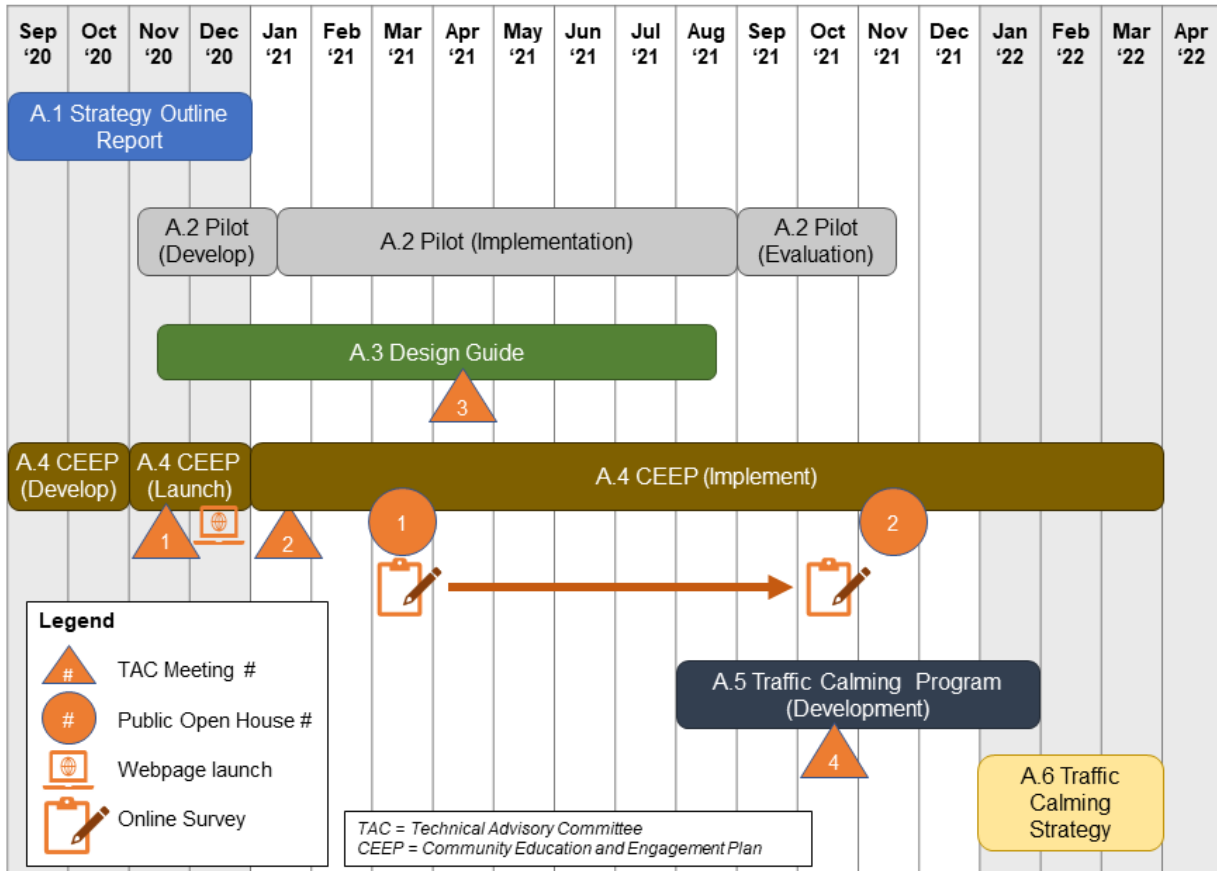
There are six key tasks for this project:

- **Task A.1: Strategy Outline Report** - Review of Background Information, Best Practices and Emerging Technologies.
- **Task A.2 Pilot Project Program Implementation and Summary Report** - Development, implementation and evaluation of project pilots.
- **Task A.3: Design Guide for Traffic Calming** - Developing traffic calming standards and warrants;
- **Task A.4: Community Education and Engagement Plan** - Developing a Community Education and Engagement Plan (CEEP) to engage stakeholders in this process.
- **Task A.5: 10-Year Traffic Calming Program** - Developing implementation guidelines for traffic calming.
- **Task A.6: Traffic Calming Strategy Report**- Preparation of a report to summarize the outcomes of this study.

A Technical Advisory Committee (TAC) will be formed to help guide the development of the Traffic Calming Strategy.

An overview of the project planning process and approximate timing of TAC meetings (and other consultation initiatives) is provided in Figure 1.

Figure 1: Project Timeline



Note: Online survey would run for approximately 3 to 5 weeks within the period indicated. The exact timing of the survey will depend on the survey topics.

2. Mandate

The TAC is an advisory committee established by the Town in accordance with these Terms of Reference (TOR). Committee members are guided by these Terms of Reference.

The mandate of the TAC is to review and provide comments on the materials prepared through the various tasks of this project. In particular, the role of TAC will include assisting the Town's project team in the following areas:

- Identifying stakeholder and public issues that are pertinent to the updating of the Town's Traffic Calming Policy;
- Providing insight on potential approval, regulatory, legislative, or other requirements;

- Providing input into the proposed Community Education and Engagement Plan;
- Providing comments on the draft Strategy Outline Report;
- Providing input into the development of the pilot program;
- Providing input on relevant traffic calming standards and warrants;
- Providing written comments on the draft Design Guide for Traffic Calming; and
- Providing input into the implementation guidelines for traffic calming.

3. Responsibilities of TAC

In fulfilling their mandate, members of the TAC will be responsible for the following:

- Reviewing relevant project materials;
- Attending and participating in TAC meetings;
- Providing comment and input to the Town/EXP on information presented and any other information relevant to the project tasks.

4. Responsibilities of the Town/EXP

To assist the TAC in fulfilling its mandate, the Town will be responsible for the following tasks, which will be implemented with the assistance of EXP:

- Ensuring TAC members receive project information for review approximately one week prior to each scheduled TAC meeting;
- Ensuring TAC members receive project information to be made available to the public;
- Coordinating with TAC members on any public meetings or workshops;
- Ensuring that all comments and suggestions made by TAC members are documented to facilitate their incorporation into the project tasks.

While TAC members will provide input to the project team on the project tasks and associated products, final decisions about TAC procedures and the project tasks will rest with the Town;

5. Membership and Structure of the TAC

Participation on the TAC would be invited to the following stakeholders:

- Town of Innisfil (in particular, staff from Capital Engineering, Development Engineering, Planning, and Operations);
- A representative of the Town of Innisfil School Zone – Traffic Safety Advisory Committee;
- County of Simcoe;
- South Simcoe Police;
- Innisfil Fire and Rescue;
- County of Simcoe Paramedic Services;
- Simcoe-Muskoka District Health Unit;
- Simcoe County District School Board
- Simcoe Muskoka Catholic District School Board;
- Community groups;
- Government agencies, as required; and
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 - Design guide outline.
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 - Online survey results.
 - 10-Year Traffic Calming Program Implementation Guidelines.
 - Feedback from Public/Virtual Open House #1.
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**Innisfil Traffic Calming Project
Consultation Summary**

Attachment B:


Project Webpage Screenshots

Traffic Calming Strategy | Get Involved

getinvolvedinnisfil.ca/tcs





Get Involved Innisfil

Town of Innisfil IdeaLAB & Library All Projects Search Sign in Register



Home / Traffic Calming Strategy

Traffic Calming Strategy

We know how much traffic safety affects the quality of life for Innisfil residents just like you—that's why we're developing a traffic calming strategy. The strategy will blend the best, proven techniques with new, forward-thinking technologies, allowing us to address the community's traffic calming safety needs. Staff are working with an external consultant (EXP Services) to gain insight, follow best practices, and create a focus for this project. But we also need to hear from the *context experts*, and that means our residents.


What is traffic calming?

Traffic calming is the deliberate slowing of motor vehicle traffic on local roadways in a residential setting. Traffic calming reduces the negative effects of motor vehicle use, alters driver behaviour, and improves conditions for non-motorized roadway users. Essentially, we want to protect people getting around town who are walking, biking, skateboarding, etc. Historically, traffic calming has been achieved, with varying success, by physical measures that include things like signs, landscaping, pavement markings, speed bumps, curb bump-outs, and more.


Who's Listening

Capital Engineering

Traffic Calming Strategy
Project Leads
Town of Innisfil



Email innisfil_tcs2022@innisfil.ca



STAY INFORMED

Subscribe for project updates

Your email address...

Subscribe

markings, speed bumps, curb bump-outs, and more.



In preparing the strategy, there will be a review of the existing road network uses and demands, customer inquiries, speed data, and collision data.

This project includes:

- A hotspot analysis to determine key locations for traffic calming measures
- A review of traffic calming best practices and emerging technologies
- A pilot program to evaluate recommended traffic calming measures
- The preparation of a Design Guide for Traffic Calming
- Recommendations of Policy updates and development
- Preparation of a 10-Year Traffic Calming Program

Have your say

Public input will be a key component of this project. We encourage you to subscribe for updates and opportunities by adding your email to the "stay informed" widget on the right.

Engagement updates

Public Open House #1

We held the first virtual public open house way on April 26, 2022. You can [review the recording](#) and [presentation materials](#) for more information.

Traffic Calming Pilot Projects

Subscribe

32 members of your community are following this project

Key Dates

Public Open House #1
April 26 2022

Deadline to Provide Comments
May 11 2022

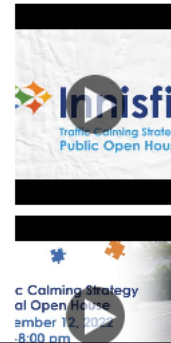
Traffic Calming Pilot Projects
August → October 2022

Online Survey: Traffic Calming Pilot
October 31 → November 21 2022

Public Open House #2
December 12 2022

Traffic Calming Strategy Project Ends
February 2023

Videos



Public Open House #1

We held the first virtual public open house way on April 26, 2022. You can [review the recording](#) and [presentation materials](#) for more information.

Traffic Calming Pilot Projects

Traffic Calming Pilot Projects were held at select locations in Innisfil from August 26 to October 11, 2022. An online survey was open from October 31 to November 21, 2022 to collect feedback on the pilot projects.

Public Open House #2

We held the second virtual public open house on December 12, 2022. You can [review the recording](#) and [presentation materials](#) for more information. Feedback and comments can be submitted via email to Yassine Bennani (yassine.bennani@exp.com) until Friday, December 30, 2022.

SURVEY

TRAFFIC CALMING PILOT PROJECTS

MAP TOOL

CLOSED: This survey has concluded.

Traffic Calming Pilot Project Survey

The Town of Innisfil is currently developing a new Traffic Calming Strategy. As part of the strategy's development, the Town implemented a series of pilot projects to test several traffic calming measures. The pilot projects ran in three areas from August 26 to October 11, 2022: Shore Acres Drive, Belle Aire Beach Road, and Maple Road.

This survey has been prepared to get your feedback on the traffic calming measures used.

[Take Survey](#)



Documents

April 26, 2022 - Traffic Calming Strategy Open House #1 Slides (4.38 MB) (pdf)

December 12, 2022 - Traffic Calming Strategy Open House #2 Slides (5.61 MB) (pdf)

Important Links

[Traffic Calming in Innisfil](#)

[School Zone Safety](#)

Traffic Calming Pilot Projects

We pilot tested some traffic calming safety measures in areas that have been reported as high-speed zones, despite the posted speed limit. We want your feedback on the pilot tests (see survey tab). The following presents the locations and traffic calming measures tested:



Shore Acres Drive

On-road pavement marking with the speed limit sign wording (50 km/h).



Belle Aire Beach Road

Chicanes with a barrier curb and barrels.



Maple Road

Important Links

- [Traffic Calming in Innisfil](#)
- [School Zone Safety](#)

Maple Road

Flexible bollards, speed cushions, and a raised pedestrian crossing.



The locations were selected based on a number of criteria including speeding history, collision history, a GIS-based analysis, and more. The type of traffic calming measures were chosen based on proven effectiveness, cost and suitability for the location.

This pilot project ran from August 26 to October 11, 2022. The data collected will help evaluate the impact of these measures. The information will be used to inform a 10-year traffic calming program, policy, and traffic calming design guide.

The online survey, available October 31 to November 30, 2022, will help assess how residents feel about these traffic calming measures and their level of effectiveness.

We look forward to sharing the results with you as we continue to make improvements to road safety in Innisfil!

December 12, 2022 – Traffic Calming Strategy Open House #2 Slides (5.61 MB) (pdf)

Traffic Calming Map



10 months



Have Your Say!

The Traffic Calming 10-Year Program will include a list of locations in Innisfil where traffic calming projects are recommended. We want your input on what locations require traffic calming and why.

You can use the Map Tool to do this. To start, click on the map or the "Go to Map" button. Click on the "+" icon to add and drag a pin, and then list your top 2 or 3 reasons why you feel traffic calming is needed there, including:

- Speeding
- Increase safety for pedestrians and cyclists
- Streetscape improvements
- Increase access for all traffic modes
- Reduce collisions
- Reduce need for police enforcement
- Reduce cut-through traffic

[Go to Map](#)

Important Links

- [Traffic Calming in Innisfil](#)
- [School Zone Safety](#)

**Innisfil Traffic Calming Project
Consultation Summary**

Attachment C:

Technical Advisory Committee

Technical Advisory Committee Membership

Organization	Name	Title
Town of Innisfil - Planning	Paul Pentikainen	Senior Vision Maker/Policy Planner
Town of Innisfil - Operations	Alex Juby	Operations Technologist
Town of Innisfil - Development Engineering	Suzanna Nilsson	Development Engineer
Town of Innisfil - Community Development Standards Branch	Mitchel Harris	Community Standards Officer
Town of Innisfil - Capital Engineering	Carolina Cautillo	Project Manager- Roads, Traffic & Transportation
SZ-TSAC	William Van Berkel	Councillor - Ward 2
South Simcoe Police	Steve Black	
Simcoe Muskoka Catholic District School Board	Christine Hyde	Manager of Planning
Simcoe County District School Board	Andrew Keuken	Manager of Planning
Simcoe County District School Board	Katie Kirton	Assistant Manager of Property and Planning
Innisfil Fire and Rescue	Brent Black	Acting Deputy Fire Chief
County of Simcoe Paramedic	Sarah Mills	Commander, Paramedic Operations
County of Simcoe Paramedic	Derryk Aelick	
County of Simcoe	Chris Doherty	Engineering Technician
Bradford West Gwillimbury	Paul Dubniak	Transportation Technologist



Town of Innisfil Traffic Calming Strategy

Terms of Reference for Technical Advisory Committee

1. Introduction

The Town of Innisfil has retained EXP to develop a Traffic Calming Strategy, including updating its Traffic Calming Policy, outlining a variety of traffic calming projects, improving community safety for those living in and visiting the Town. The resulting traffic calming measures are to include a blend of the best proven techniques, new, forward-thinking technologies, and custom-made strategies to address the community's needs.

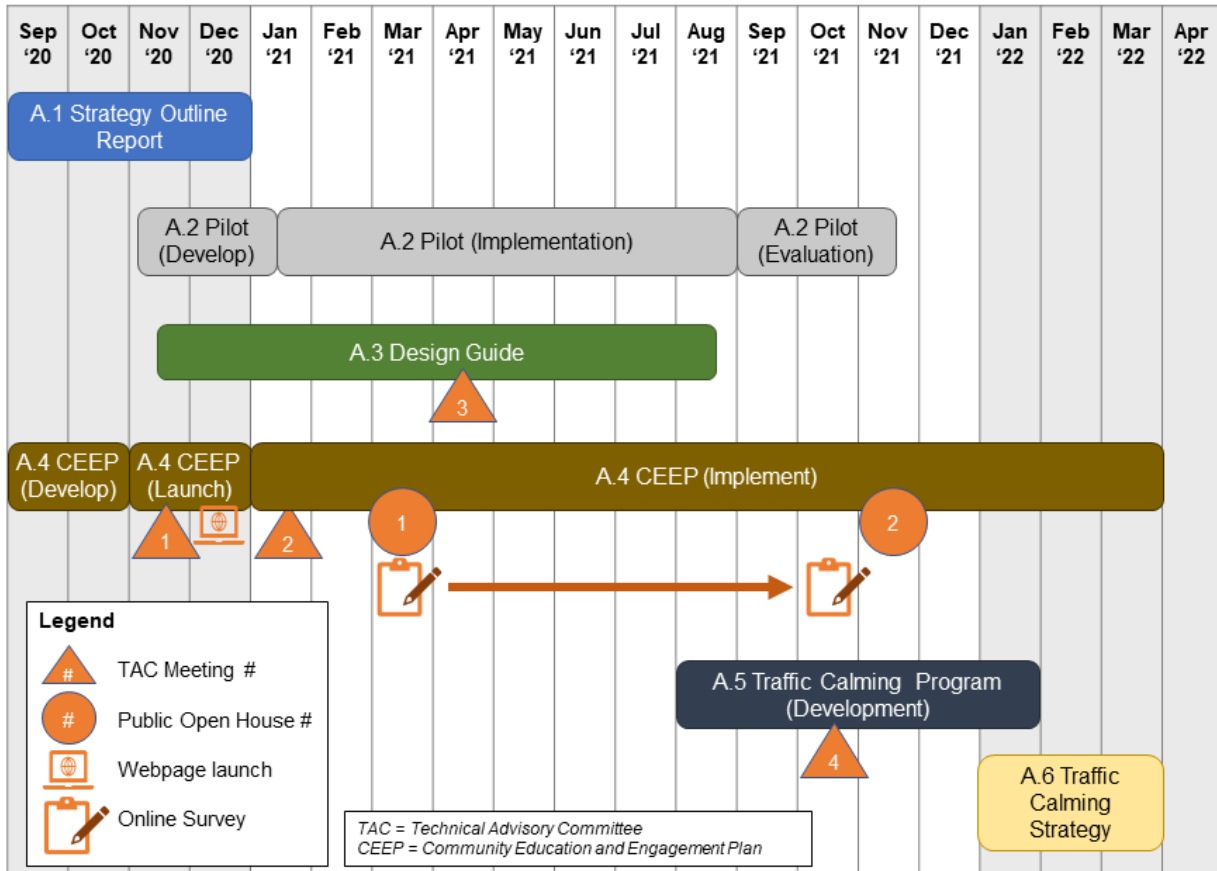
There are six key tasks for this project:

- **Task A.1: Strategy Outline Report** - Review of Background Information, Best Practices and Emerging Technologies.
- **Task A.2 Pilot Project Program Implementation and Summary Report** - Development, implementation and evaluation of project pilots.
- **Task A.3: Design Guide for Traffic Calming** - Developing traffic calming standards and warrants;
- **Task A.4: Community Education and Engagement Plan** - Developing a Community Education and Engagement Plan (CEEP) to engage stakeholders in this process.
- **Task A.5: 10-Year Traffic Calming Program** - Developing implementation guidelines for traffic calming.
- **Task A.6: Traffic Calming Strategy Report**- Preparation of a report to summarize the outcomes of this study.

A Technical Advisory Committee (TAC) will be formed to help guide the development of the Traffic Calming Strategy.

An overview of the project planning process and approximate timing of TAC meetings (and other consultation initiatives) is provided in Figure 1.

Figure 1: Project Timeline



Note: Online survey would run for approximately 3 to 5 weeks within the period indicated. The exact timing of the survey will depend on the survey topics.

2. Mandate

The TAC is an advisory committee established by the Town in accordance with these Terms of Reference (TOR). Committee members are guided by these Terms of Reference.

The mandate of the TAC is to review and provide comments on the materials prepared through the various tasks of this project. In particular, the role of TAC will include assisting the Town’s project team in the following areas:

- Identifying stakeholder and public issues that are pertinent to the updating of the Town’s Traffic Calming Policy;
- Providing insight on potential approval, regulatory, legislative, or other requirements;

- Providing input into the proposed Community Education and Engagement Plan;
- Providing comments on the draft Strategy Outline Report;
- Providing input into the development of the pilot program;
- Providing input on relevant traffic calming standards and warrants;
- Providing written comments on the draft Design Guide for Traffic Calming; and
- Providing input into the implementation guidelines for traffic calming.

3. Responsibilities of TAC

In fulfilling their mandate, members of the TAC will be responsible for the following:

- Reviewing relevant project materials;
- Attending and participating in TAC meetings;
- Providing comment and input to the Town/EXP on information presented and any other information relevant to the project tasks.

4. Responsibilities of the Town/EXP

To assist the TAC in fulfilling its mandate, the Town will be responsible for the following tasks, which will be implemented with the assistance of EXP:

- Ensuring TAC members receive project information for review approximately one week prior to each scheduled TAC meeting;
- Ensuring TAC members receive project information to be made available to the public;
- Coordinating with TAC members on any public meetings or workshops;
- Ensuring that all comments and suggestions made by TAC members are documented to facilitate their incorporation into the project tasks.

While TAC members will provide input to the project team on the project tasks and associated products, final decisions about TAC procedures and the project tasks will rest with the Town;

5. Membership and Structure of the TAC

Participation on the TAC would be invited to the following stakeholders:

- Town of Innisfil (in particular, staff from Capital Engineering, Development Engineering, Planning, and Operations);
- A representative of the Town of Innisfil School Zone – Traffic Safety Advisory Committee;
- County of Simcoe;
- South Simcoe Police;
- Innisfil Fire and Rescue;
- County of Simcoe Paramedic Services;
- Simcoe-Muskoka District Health Unit;
- Simcoe County District School Board
- Simcoe Muskoka Catholic District School Board;
- Community groups;
- Government agencies, as required; and
- Other possible stakeholders reviewed in consultation with the Town, such as representatives from local resident associations or parent councils at local schools.

The TAC will also include members of the project team, including Town staff and the project consulting team. TAC meetings will be chaired by EXP.

6. Term of the TAC

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**Innisfil Traffic Calming Project
Consultation Summary**

Attachment D:

Public Open House Materials



1

2

Innisfil Traffic Calming Project
Public Open House #1

Welcome and Introductions



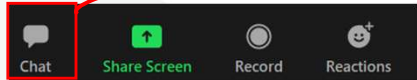
- Darrell Fuller, P.Eng.
Capital Engineer
- Carolina Cautillo
Project Manager, Roads,
Traffic, & Transportation
- Greg Kent, P.Eng.
Project Manager
- Peter Lougheed, PhD, P.Eng.
Project Engineer
- Jean-Louis Gaudet
Stakeholder Consultation



2

Agenda Review

1. Purpose of the Open House
2. Traffic Calming in Innisfil
3. Pilot Projects
4. 10-Year Traffic Calming Program
5. How to get involved
6. Next Steps
7. Question and Answer Session



Purpose of Open House

- 1) Introduction to Traffic Calming in Innisfil
- 2) Overview of Traffic Calming Project
- 3) Review of Pilot Projects
- 4) How You can Provide Feedback



What is Traffic Calming?

- A combination of mainly physical measures to:
 - Reduce the negative effects of motor vehicle use
 - Alter driver behavior
 - Improve conditions for vulnerable street users (e.g., pedestrians, cyclists)

Key Traffic Calming Objectives

- Slow down motor vehicles
- Increase safety for vulnerable users
- Enhance the street environment
- Increase access for all traffic modes
- Reduce collision frequency and severity
- Reduce need for police enforcement
- Reduce cut-through motor vehicle traffic

based on
Institute of
Transportation
Engineers



Poll Time!



- Poll will appear in centre of your screen.
- Your individual results cannot be seen by others.
- You can only vote once per question.

TCS Poll 1

1. Do you feel that traffic calming is needed on your street? (Single Choice) *

Yes

No

Not sure

0 of 1 answered


Submit




7

Poll Time!

Innisfil Traffic Calming Project
Public Open House #1



#1




7


8

Poll Time!

Innisfil Traffic Calming Project
Public Open House #1



#2



8

What is Traffic Calming?

Examples of Traffic Calming Measures

<p>Vertical Deflection</p>	<ul style="list-style-type: none"> • Raised Crosswalk • Raised Intersection • Speed Cushion • Speed Hump 		
<p>Horizontal Deflection</p>	<ul style="list-style-type: none"> • Chicanes • Curb Radius Reduction • Lateral Shift • Traffic Circle / Traffic Button / Mini-Roundabout 		

What is Traffic Calming?

Examples of Traffic Calming Measures

<p>Roadway Narrowing</p>	<ul style="list-style-type: none"> • Curb Extension • Lane Narrowing • On-street Parking • Raised Median Island • Road Diet • Vertical Centreline Treatment 	
<p>Surface Treatment</p>	<ul style="list-style-type: none"> • Sidewalk Extension / Textured Crosswalk • Textured Pavement • Transverse Rumble Strips 	




What is Traffic Calming?

Examples of Traffic Calming Measures

Pavement Markings	<ul style="list-style-type: none"> • Converging Chevrons • Dragon Teeth • On-Road 'Sign' Pavement Markings 		
Access Restriction	<ul style="list-style-type: none"> • Directional Closure • Full Closure • Intersection Channelization • Raised Median through Intersection • Right-in / Right-out Island 		

What is Traffic Calming?

Types of Traffic Calming Measures

Design Elements	<ul style="list-style-type: none"> • Gateway • Shared Space 		
Enforcement	<ul style="list-style-type: none"> • Aircraft / Drone Radar Enforcement • Fixed or Mobile Speed Enforcement • Speed Watch Program 		

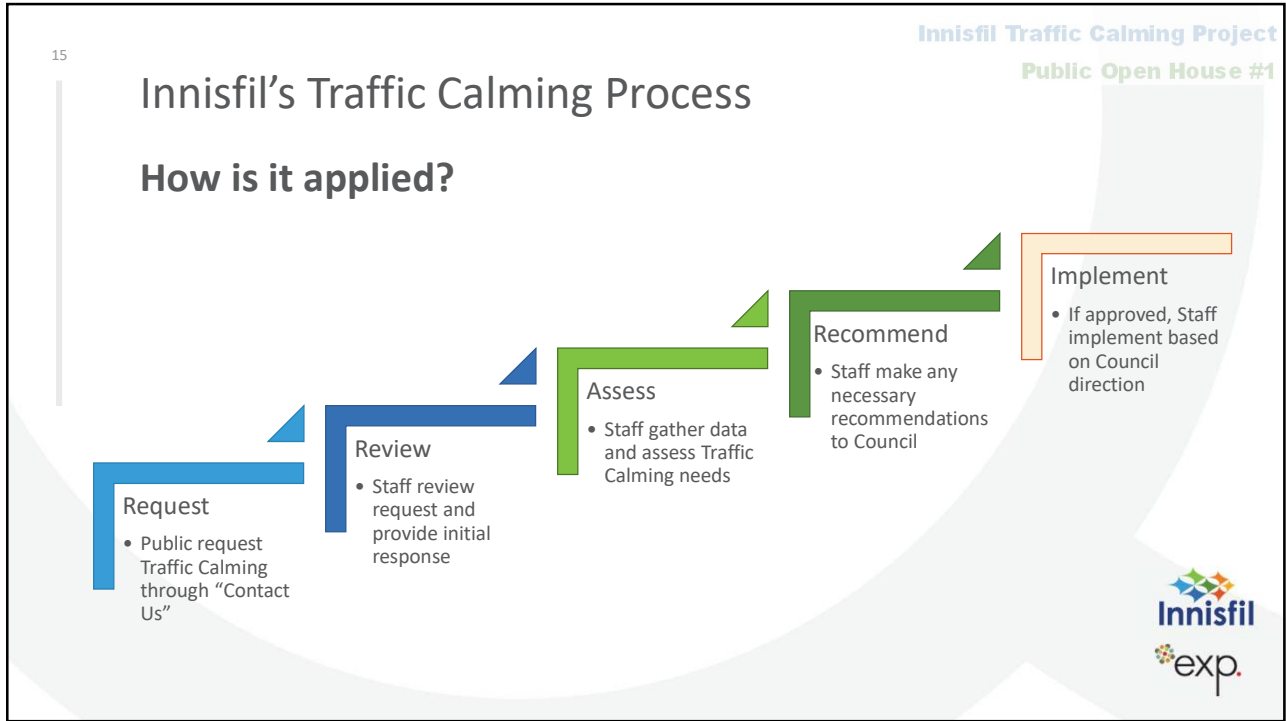
What is Traffic Calming?

Types of Traffic Calming Measures

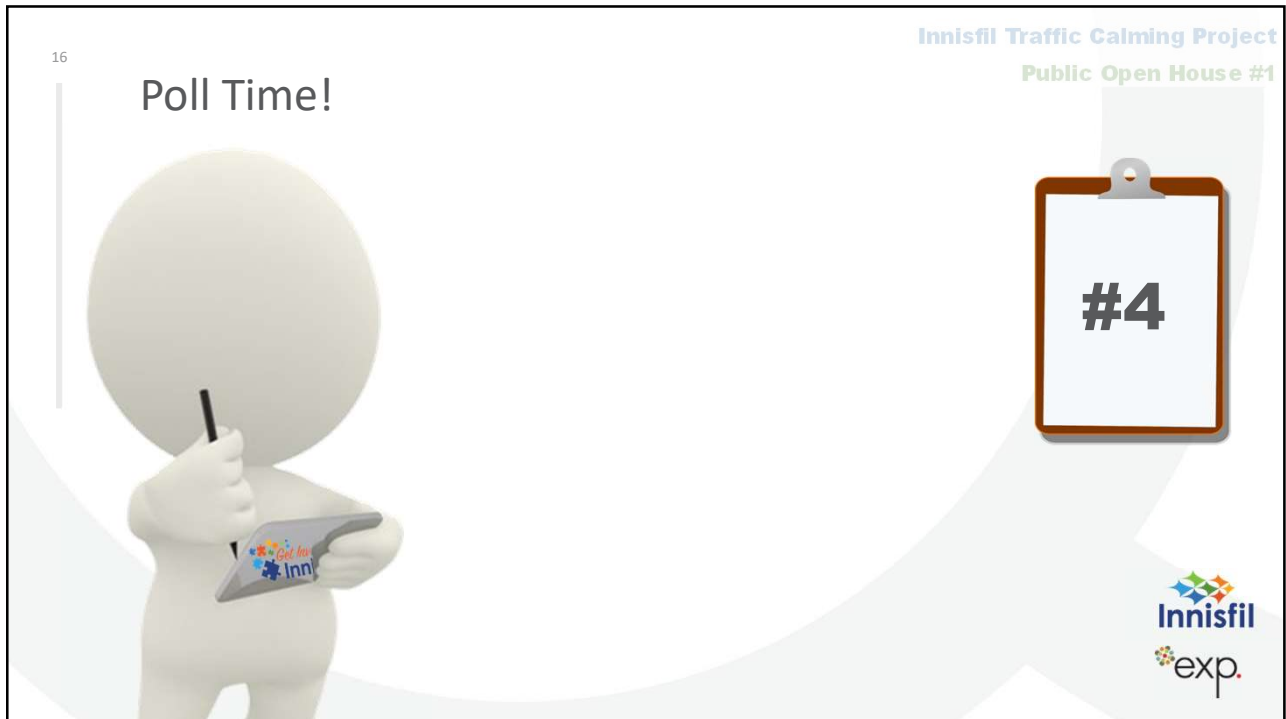
<p>Education</p>	<ul style="list-style-type: none"> • Active and Safe Routes to School Program • Pace Car Program • Speed Display Devices • Targeted Education Campaign • Vehicle Activated Signs (VAS) 	
<p>Emerging Technologies and Measures</p>	<ul style="list-style-type: none"> • LED Pavement Markings • Optical Illusion Pavement Markings • Rest-on-Red Signal Phasing • Section Control • Variable Speed Limits (VSL) • Actibump 	

Poll Time!





15



16

Innisfil Traffic Calming Project

Project Goals

Improve community safety for those living in and visiting the Town.

- Develop a 10-year traffic calming strategy.
- Review and recommend updates to the Town’s traffic-related policies.
- Prepare Traffic Calming Guide that includes:
 - A blend of the best proven techniques;
 - New forward-thinking technologies; and
 - Implementation strategies to address the community’s needs.



Innisfil Traffic Calming Project



Innisfil Traffic Calming Project: Key Findings

What we did

- Reviewed data sources
 - GIS
 - Complaints
- Assessed current Traffic Calming policy
- Identified Pilot Projects

What we found

- 57% of traffic complaints were about speeding
- Traffic calming warrants (conditions) are restrictive – opportunities available to improve how they are applied




Poll Time!



Traffic Calming Project Pilots

- Three Pilot projects to test effectiveness of specific Traffic Calming Measures.
- Pilot Objectives:
 - Provide guidance on traffic speed management on future arterial roadways.
 - Provide information relating to the implementation of Traffic Control Measures and their effectiveness
 - Provide an analysis of the efficacy and acceptance of the tested Traffic Control Measures

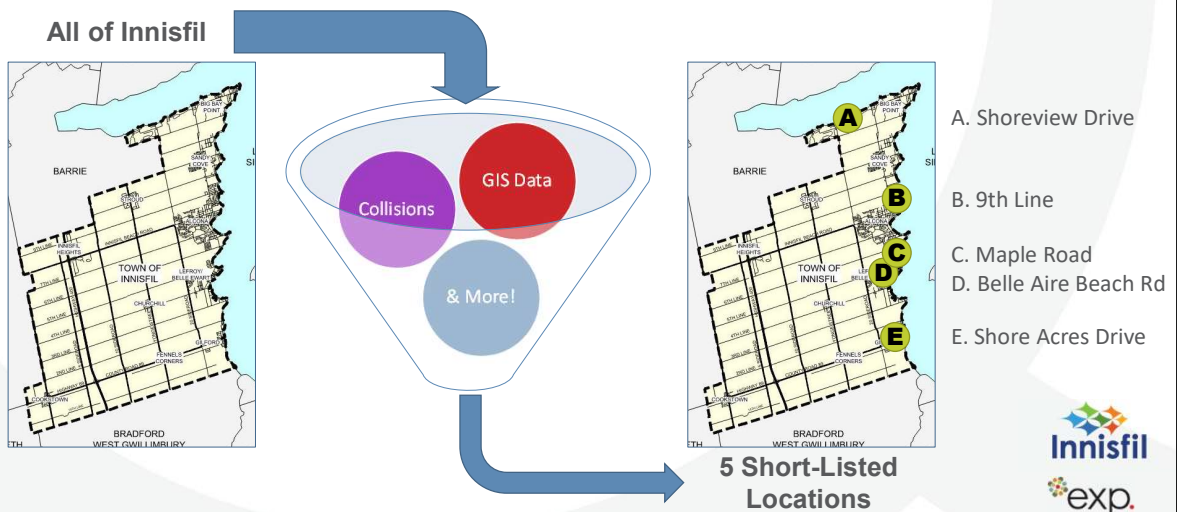


Outcomes:

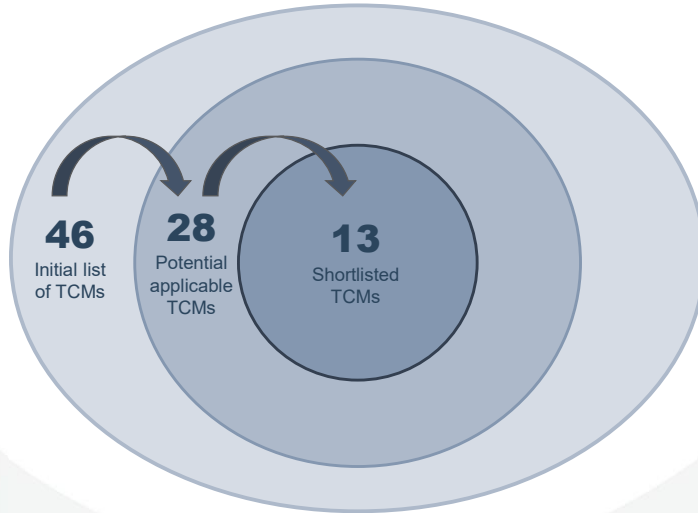
- Improved Traffic Calming programing
- More-effective toolbox for implementing Traffic Calming Measures in the future.



Traffic Calming Project Pilots: Locations



Traffic Calming Project Pilots: Measures



*TCMs =
Traffic Control
Measures



Traffic Calming Project Pilots: Measures

- Vertical Deflection
 1. Speed Cushion
 2. Speed Hump or Table
- Horizontal Deflection
 3. Chicanes
- Roadway Narrowing
 4. Lane Narrowing
- Pavement Markings
 5. Converging Chevrons
 6. On-Road signs
 7. Full-Lane Transverse Bars
 8. Peripheral Transverse Bars
- Enforcement
 9. Automated Speed Enforcement
- Education
 10. Speed Display Devices
 11. Vehicle Activated Signs
- Emerging Technologies
 12. 3-D pavement markings
 13. Actibump



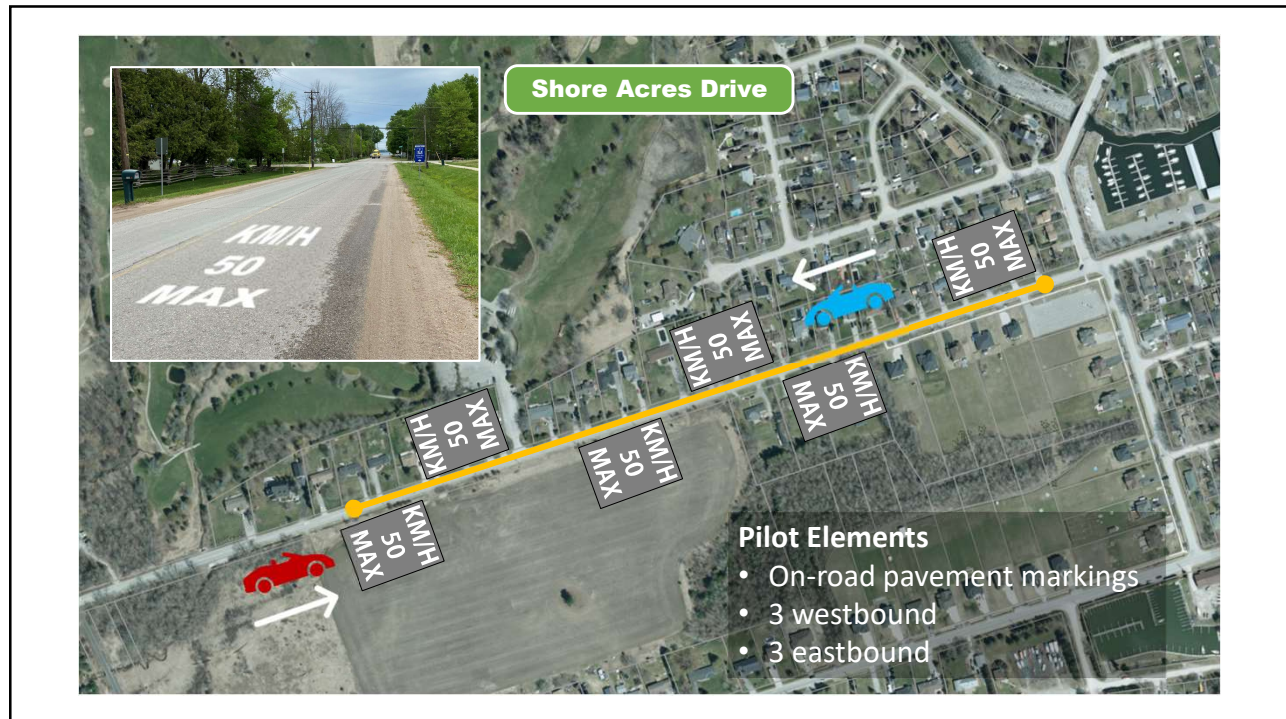
*TCMs =
Traffic Control
Measures



Traffic Calming Project Pilots: Selection

Three Pilot Projects

- Maple Road
 - Lane Narrowing
 - Speed Cushions
 - Raised Pedestrian Crosswalk
- Belle Aire Beach Road
 - Chicanes (Two-lane, using planters)
- Shore Acres Drive
 - On-Road Signs (Pavement markings)

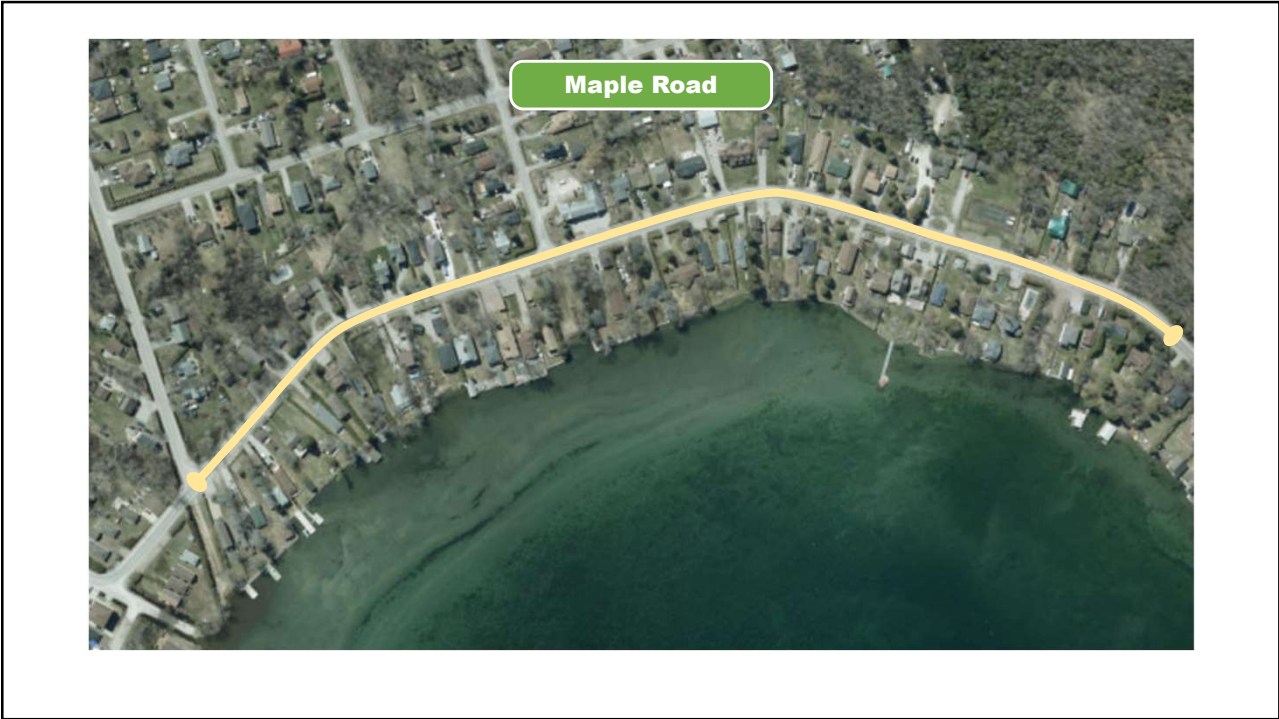




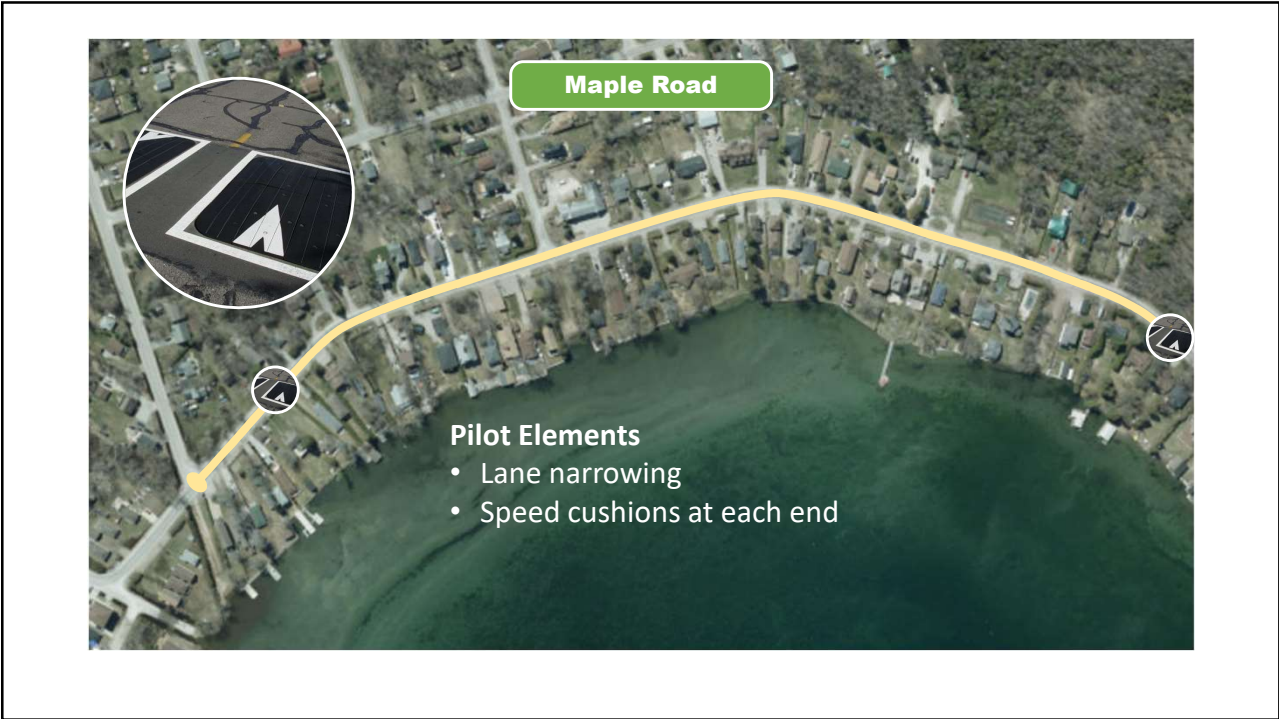
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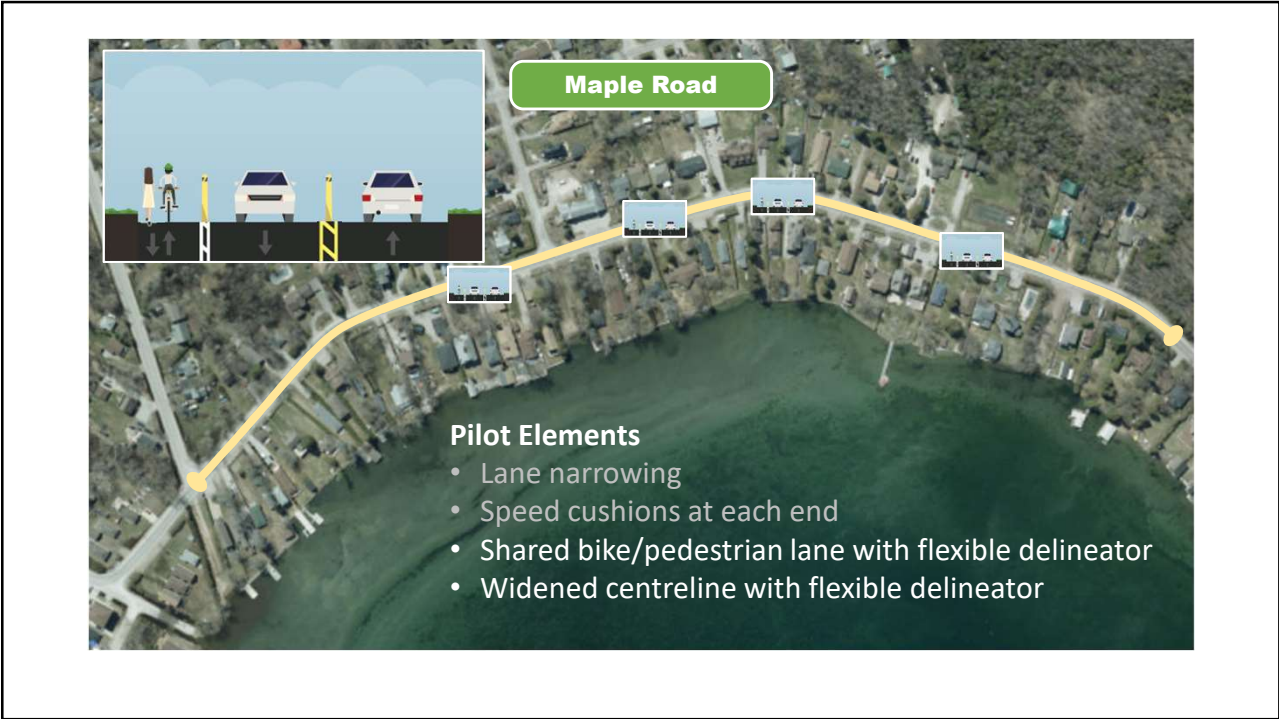
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29



30



31



32

Maple Road

Pilot Elements

- Lane narrowing
- Speed cushions at each end
- Shared bike/pedestrian lane with flexible delineators
- Widened centreline with flexible delineators
- Special crosswalk (“PXO Crossing Type D”), raised

33

Maple Road

Pilot Elements

- Lane narrowing (~750 m)
- Speed cushions at each end
- Shared bike/pedestrian lane with flexible delineator
- Widened centreline with flexible centreline delineator
- Special crosswalk (“PXO Crossing Type D”), raised

34

10-Year Traffic Calming Program

- Provide inventory of potential traffic calming locations for the 10-year traffic calming program.
- Inventory will be based on collision locations, traffic data, and community inquiries.
- Program will include criteria and methodology for prioritizing the potential locations.



Poll Time!



Project Next Steps

- Review comments from Public Open House #1
- Pilot Implementation, Monitoring, and Evaluation
- Design Guide
- 10-Year Traffic Calming Program
- Guidance for Updating Traffic Calming Policy



Let's Get Involved!

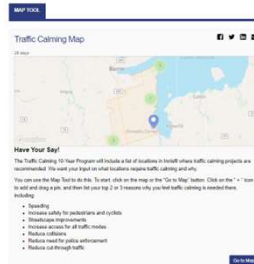


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Subscribe

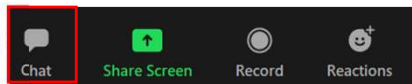
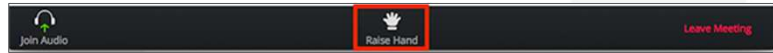
- www.getinvolvedinnisfil.ca/tcs
- innisfiltcs2022@innisfil.ca
- Map tool
- Future activities:
 - Online survey
 - Public Open House #2 (Fall 2022)



Question and Answer Session



- Send questions to host using chat.
- Click on icon to raise hand to request to speak.



Website: www.getinvolvedinnisfil.ca/tcs
E-mail address: innisfiltcs2022@innisfil.ca



Innisfil Traffic Calming Project
Public Open House #1: Poll Results

1. Have you ever requested the Town investigate or implement traffic calming in your neighbourhood?

Response	Number of Responses	Percent of Responses
No - I never had the need	6	38%
No - I wanted to but did not know how	1	6%
Yes	9	56%
Total	16	100%

2. Would you support Traffic Calming measures in front of your home?

Response	Number of Responses	Percent of Responses
Yes, definitely	6	40%
Yes, but it would depend on the type of measure	7	47%
No	2	13%
Total	15	100%

3. Do you feel that traffic calming is needed on your street?

Response	Number of Responses	Percent of Responses
Yes	6	43%
No	7	50%
Not sure	1	7%
Total	14	100%

4. Do you have locations in mind where Traffic Calming is needed?

Response	Number of Responses	Percent of Responses
Yes - one or two locations	9	56%
Yes - several locations	6	38%
Not sure	1	6%
Total	16	100%

5. If Traffic Calming is needed on your street, what are the main things you want it to do? Please pick your top 3 choices.

Responses	Number of Responses	Percent of Respondents (n=13)
Slow down motor vehicles	10	77%
Increase safety for vulnerable users (e.g., pedestrians, cyclists)	9	69%
Enhance the street environment	4	31%
Reduce collision frequency and severity	3	23%
Increase access for all traffic modes	2	15%
Reduce cut-through motor vehicle traffic	2	15%
Reduce need for police enforcement	1	8%
None of the above	1	8%
Total	32	-

6. If speeding is an issue in your neighbourhood, when does it happen most often?

Response	Number of Responses	Percent of Responses
Morning	0	0%
Afternoon	2	13%
Evening	2	13%
Nighttime	2	13%
Weekends	6	40%
Speeding is not an issue	3	20%
Total	15	100%



1

2

Innisfil Traffic Calming Project
Public Open House #2

Welcome and Introductions



- Carolina Cautillo
Capital Planning Engineering
Associate
- Jessica Jenkins,
Capital Engineering Leader
- Leo DeLoyde, Director of
Growth
- Greg Kent, P.Eng.
Project Manager
- Peter Loughheed, PhD, P.Eng.
Project Engineer
- Yassine Bennani, EIT
Technical Specialist
- Jean-Louis Gaudet
Stakeholder Consultation




2

Innisfil Traffic Calming Project
Public Open House #2

3

Agenda Review


1. Traffic Calming in Innisfil
2. Innisfil Traffic Calming Project: Approach
3. Pilot Projects
4. Innisfil Traffic Calming Project: Outcomes
5. Next Steps
6. Question and Answer Session



To: Questions? (Direct Message) 📄 😊 ...

Type message here...

💬 Chat
 ➡ Share Screen
 🎥 Record
 😊 Reactions



3

Innisfil Traffic Calming Project
Public Open House #2

4

What is Traffic Calming?

- A combination of mainly physical measures to:
 - Reduce the negative effects of motor vehicle use
 - Alter driver behavior
 - Improve conditions for vulnerable street users (e.g., pedestrians, cyclists)

Key Traffic Calming Objectives

Slow down motor vehicles

Increase safety for vulnerable users


Enhance the street environment

Increase access for all traffic modes

Reduce collision frequency and severity

Reduce need for police enforcement

Reduce cut-through motor vehicle traffic



4

5

What is Traffic Calming?

Examples of Traffic Calming Measures



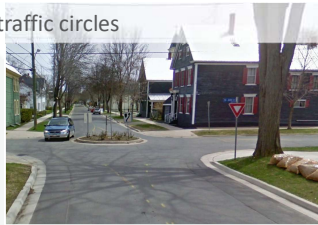
raised crosswalk



speed humps



pavement markings



traffic circles



median island



enforcement

&
many
more!

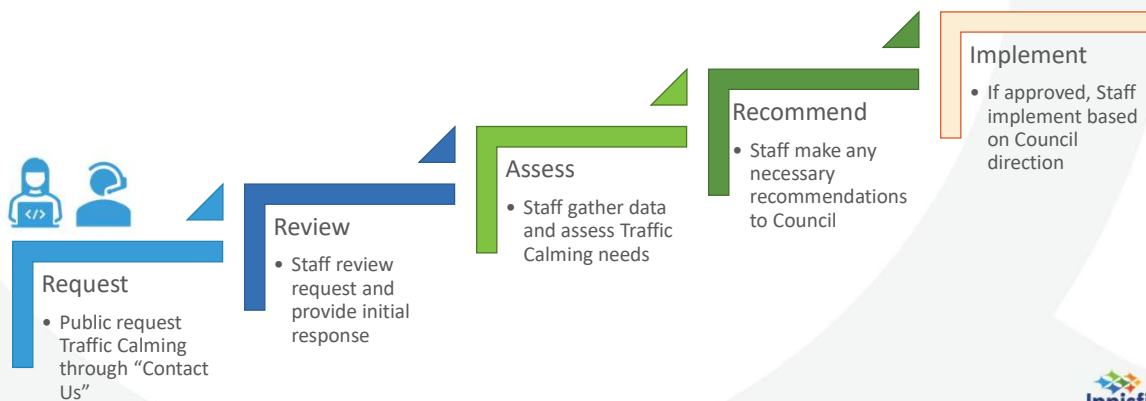


5

6

Innisfil's Current Traffic Calming Process

Initiated by a request or complaint



Proactive Traffic Calming Measures also implemented by Town (e.g., radar speed sign, warning camera placement)



6

7

Innisfil Traffic Calming Project: Goals

Improve community safety for those living in and visiting the Town

- Develop a 10-year traffic calming strategy.
- Review and recommend updates to the Town’s traffic-related policies.
- Prepare Traffic Calming Design Guide that includes:
 - A blend of the best proven techniques;
 - New forward-thinking technologies; and
 - Implementation strategies to address the community’s needs.



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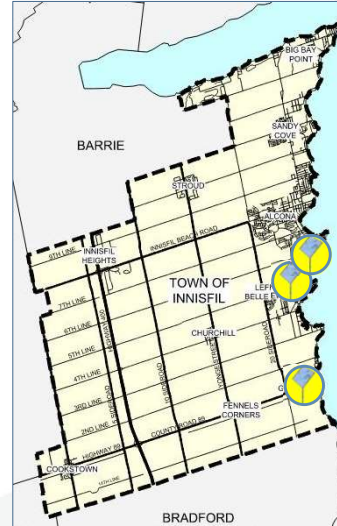
Innisfil Traffic Calming Project: Approach



8

Traffic Calming Pilot Projects

- Pilot projects conducted from August 26th to October 11th, 2022.
- Held in three locations:
 - Shore Acres Drive (20th Sideroad to Everton Drive)
 - Belle Aire Beach Road (Maple Rd to Willow Street)
 - Maple Road (Belle Aire Beach Road to 6th Line)
- Tested a variety of Traffic Calming measures



Poll Time!




- Poll will appear in centre of your screen.
- Your individual results cannot be seen by others.
- You can only vote once per question.




11

Poll Time!

Innisfil Traffic Calming Project
Public Open House #2



#1




11


12

Poll Time!

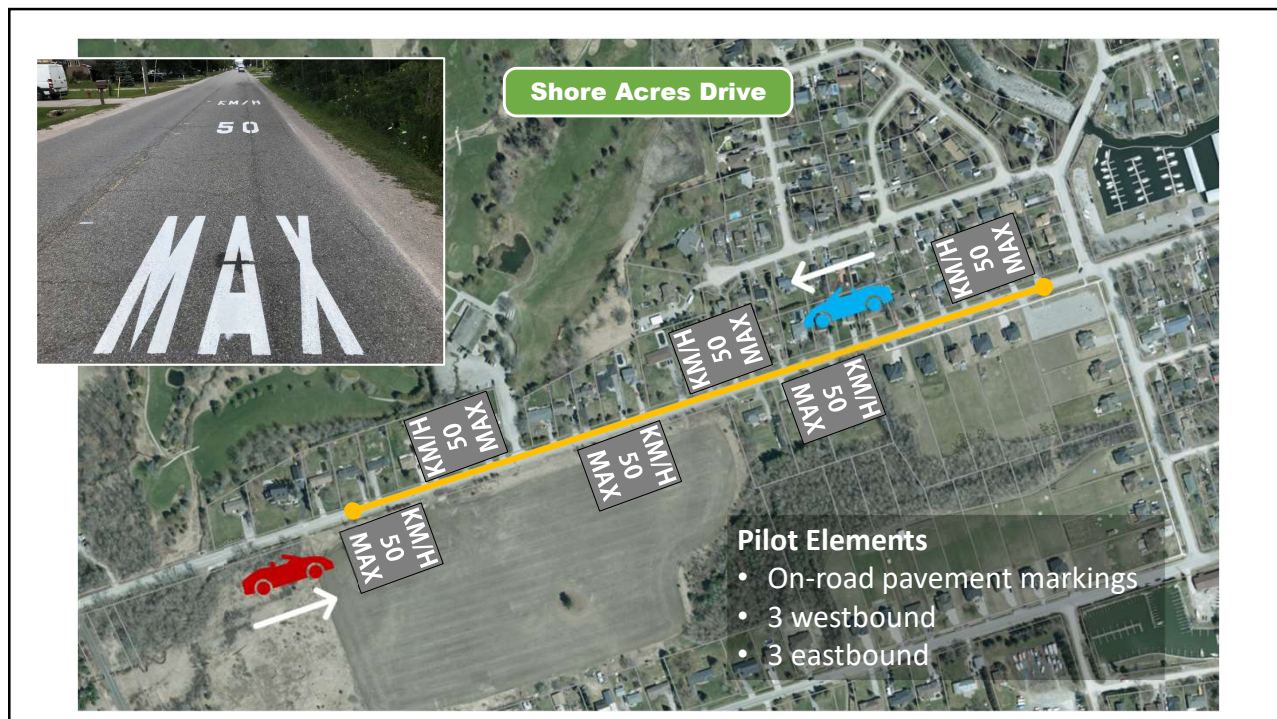
Innisfil Traffic Calming Project
Public Open House #2



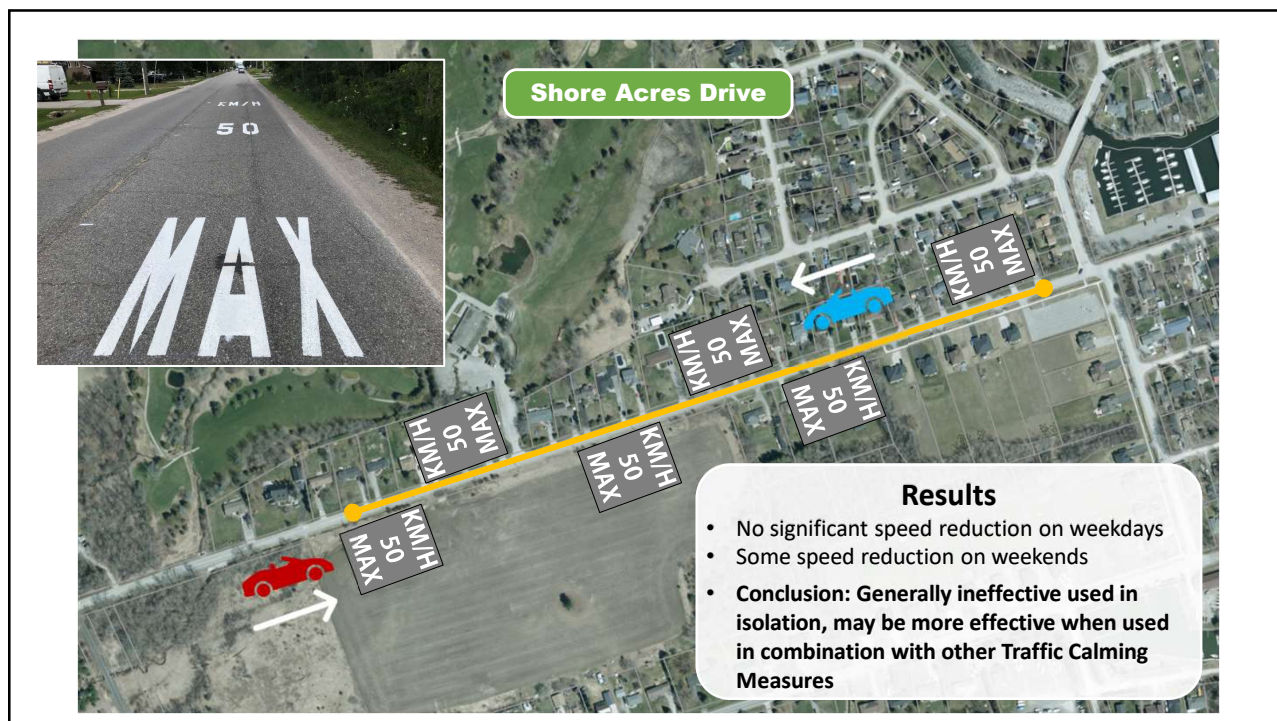
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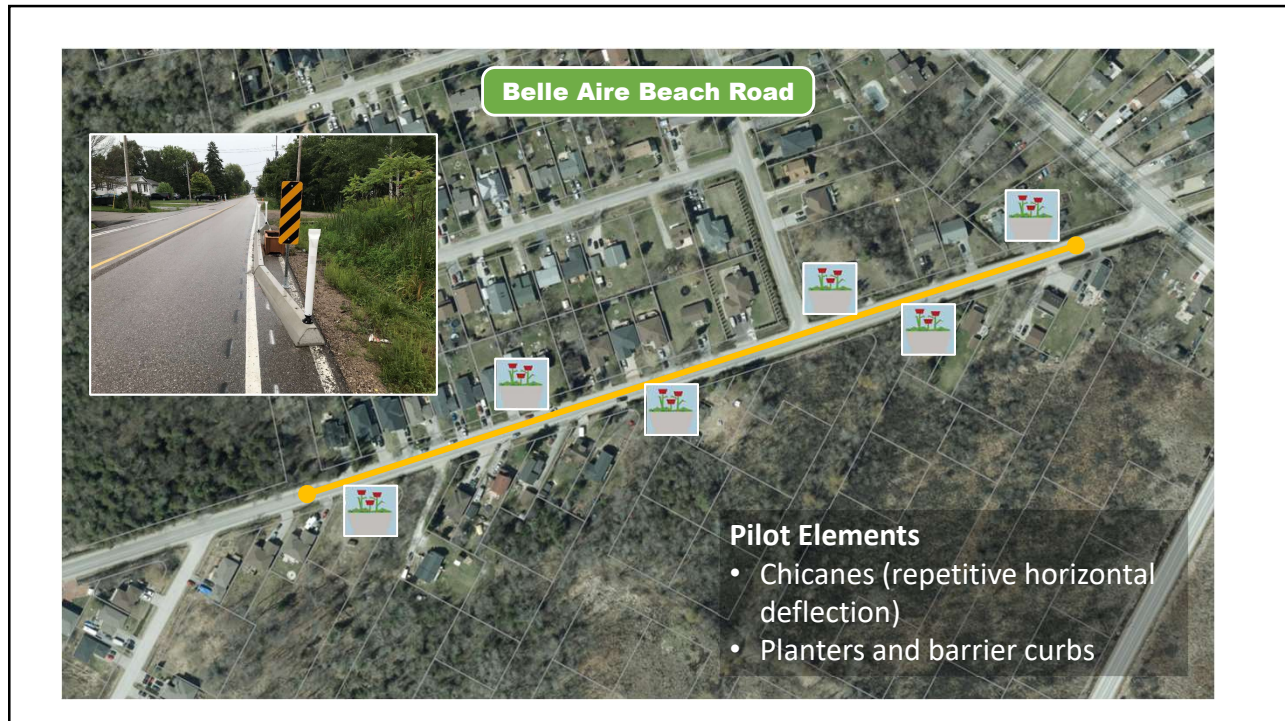
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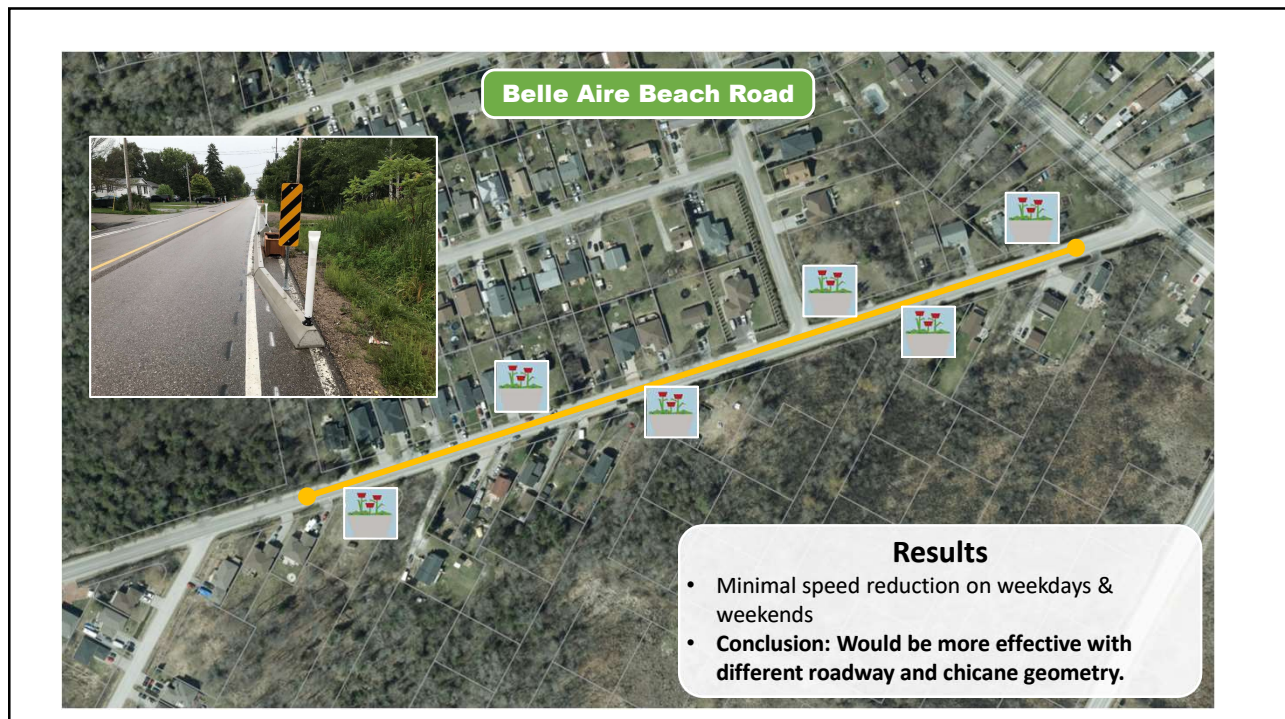
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15



16

Belle Aire Beach Road

Results

- Minimal speed reduction on weekdays & weekends
- **Conclusion:** Would be more effective with different roadway and chicane geometry.

17

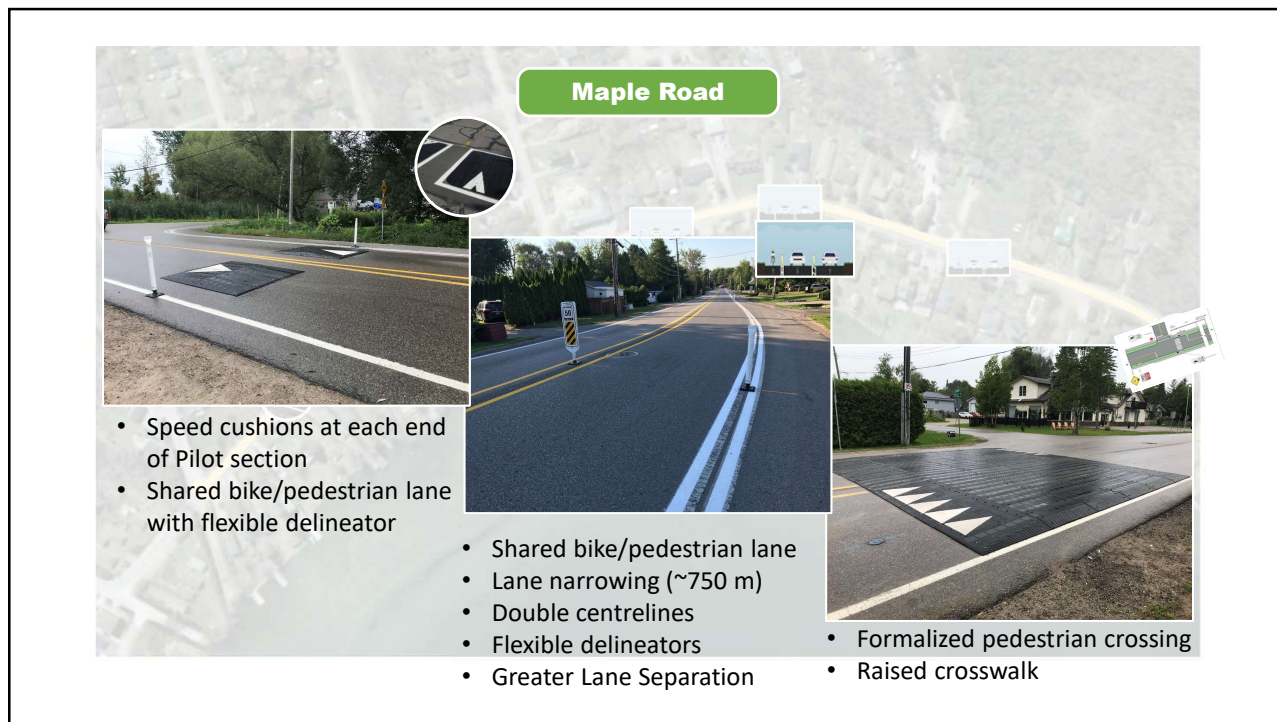
Maple Road

Pilot Elements

- Lane narrowing along full length (~750 m)
- Shared bike/pedestrian lane with flexible delineator
- Double centreline with flexible centreline delineator
- Speed cushions at each end
- Raised crosswalk (“PXO Crossing”)

PXO = Pedestrian Crossover

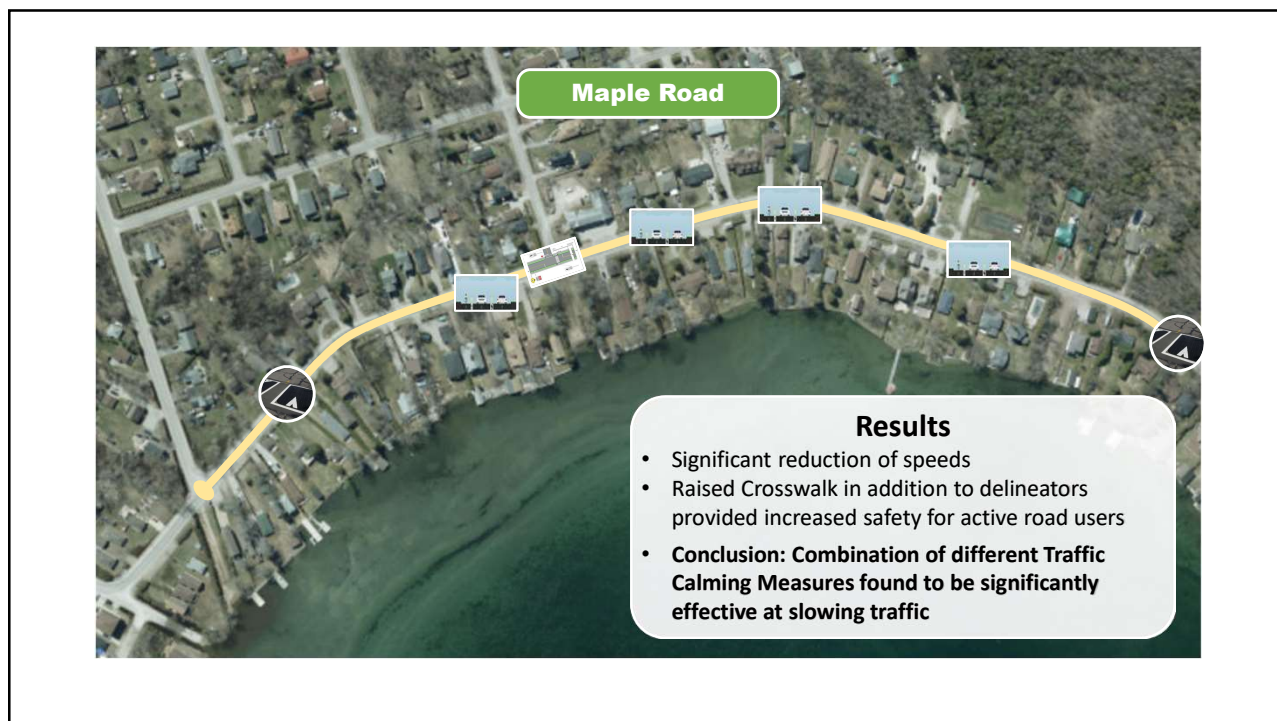
18



Maple Road

- Speed cushions at each end of Pilot section
- Shared bike/pedestrian lane with flexible delineator
- Shared bike/pedestrian lane
- Lane narrowing (~750 m)
- Double centrelines
- Flexible delineators
- Greater Lane Separation
- Formalized pedestrian crossing
- Raised crosswalk

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Maple Road

Results

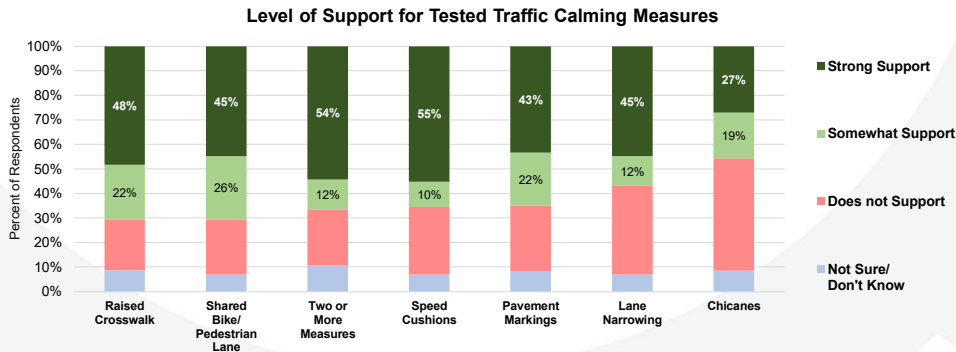
- Significant reduction of speeds
- Raised Crosswalk in addition to delineators provided increased safety for active road users
- **Conclusion: Combination of different Traffic Calming Measures found to be significantly effective at slowing traffic**

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Traffic Calming Pilot Projects

- Online survey

- Raised crosswalk, bike/pedestrian lane with delineators had greatest support
- Chicanes had least support



Traffic Calming Pilot Projects: Findings

- Traffic Calming Measures (TCM) can be effective when properly chosen and deployed.
- Pilot successfully identified effectiveness of various TCMs.
- Results of the overall project (including Pilot) provide guidance for more proactive future implementations of TCM.
- Will guide updates to Town’s current TCM policy.
- Overall, Study results support Town’s desire for a more responsive and proactive TCM Policy.



Innisfil Traffic Calming Project: Outcomes

Main Outcomes

- Traffic Calming Design Guide
- 10-Year Traffic Calming Program
- Updates to Traffic Calming Policy



Innisfil Traffic Calming Project: Outcomes

Traffic Calming Design Guide

- Provides guidelines for the review and decision-making process of traffic calming requests
- Consideration of traffic calming in new developments
- Document provides a toolbox of applicable TCMs to the Town of Innisfil



Innisfil Traffic Calming Project: Outcomes

10-Year Traffic Calming Program

- Proactive approach to implementing Traffic Calming Measures based on data analysis and an updated warrant system
- Provides a process for prioritizing warranted locations
- Process involves updating location prioritization annually based on available data
- About 15 locations to be implemented over the next three years (pending Council approval and funding)



Innisfil Traffic Calming Project: Outcomes

Updates to Traffic Calming Policy

- Current policy: Developed as part of 2018 Transportation Master Plan Update
- Strategy will include recommended updates based on:
 - Traffic Calming Design Guide
 - 10-Year Program
 - Best Practices
 - Pilot Studies



Traffic Calming in Innisfil: Future Program

- Future traffic program includes twinned approaches for implementing Traffic Calming in Innisfil:
 - Request-based approach
 - Proactive, data-driven approach (10-year program)
- Both will be supported by the Traffic Calming Design Guide and updates to the Traffic Calming Policy



Poll Time!



Next Steps

- Finalize Design Guide, 10-Year Traffic Calming Program
- Technical Advisory Committee Meeting #4 (February 2023)
 - Discussion of Final Report
- Guidance for updating Traffic Calming Policy



Traffic Calming in Innisfil



QUESTIONS?



Thank you!

Please provide your
feedback and comments
to Yassine Bennani
by Friday, Dec. 30, 2022
yassine.bennani@exp.com



**Innisfil Traffic Calming Project
Consultation Summary**


**Attachment E:
Map Tool Results**

Map Tool Screen Grab

SURVEY **TRAFFIC CALMING PILOT PROJECTS** **MAP TOOL**

Traffic Calming Map

10 months



Have Your Say!

The Traffic Calming 10-Year Program will include a list of locations in Innisfil where traffic calming projects are recommended. We want your input on what locations require traffic calming and why.

You can use the Map Tool to do this. To start, click on the map or the "Go to Map" button. Click on the "+" icon to add and drag a pin, and then list your top 2 or 3 reasons why you feel traffic calming is needed there, including:

- Speeding
- Increase safety for pedestrians and cyclists
- Streetscape improvements
- Increase access for all traffic modes
- Reduce collisions
- Reduce need for police enforcement
- Reduce cut-through traffic

[Go to Map](#)

Identified Locations requiring Traffic Calming



Summary of Reasons for Requiring Traffic Calming

Issue/Reason for Request	Number of Times Reason was Cited	Percent of Requests that Included Reason (n=33)
Speeding	30	91%
Increase safety for pedestrians and cyclists	23	70%
Reduce cut-through traffic	11	33%
Reduce collisions	7	21%
Increase access for all traffic modes	4	12%
Reduce need for police enforcement	5	15%
Streetscape improvements	3	9%

Received Responses

Approximate Address of Marker Location Map Tool Link	Comment	Selected Reasons for Traffic Calming
<p>1361 Gilford Road, Gilford, Ontario L0L 1R0, Canada</p> <p>http://www.getinvolvedinnisfil.ca/tcs/maps/traffic-calming-map?reporting=true#marker-86480</p>	<p>Lots of speeding. Routinely see people doing double the speed limit along Gilford road in the 50 km/h zone. It makes the roadway, especially near the train tracks unsafe</p>	<p>Speeding, Increase safety for pedestrians and cyclists, Streetscape improvements</p>
<p>3836 West Street, Innisfil, Ontario L9S 2L8, Canada</p> <p>http://www.getinvolvedinnisfil.ca/tcs/maps/traffic-calming-map?reporting=true#marker-86482</p>	<p>There are quite a few younger residents with sooped up cars that like to speed on this road. There are a lot of kids that bike ride and walk, but it's really not safe, especially for an autistic child like mine.</p>	<p>Speeding, Increase safety for pedestrians and cyclists, Reduce need for police enforcement</p>
<p>45 Riley Street, Innisfil, Ontario L0L 1L0, Canada</p> <p>http://www.getinvolvedinnisfil.ca/tcs/maps/traffic-calming-map?reporting=true#marker-86483</p>	<p>This is a playground for the neighborhood and there is excessive speeding as people use this road to bypass the busy intersection at 89 and 27.</p>	<p>Speeding, Increase safety for pedestrians and cyclists, Reduce cut-through traffic</p>
<p>7118 Yonge Street, Innisfil, Ontario L9S 4N7, Canada</p> <p>http://www.getinvolvedinnisfil.ca/tcs/maps/traffic-calming-map?reporting=true#marker-86484</p>	<p>Need traffic lights here. Traffic on Yonge St is increasing all the time and turning left from 7th Line is always challenging. It will also help slow people down that are speeding along that stretch of Yonge.</p>	<p>Speeding, Reduce collisions</p>
<p>1790 Saint John's Road, Innisfil, Ontario L9S 1T4, Canada</p> <p>http://www.getinvolvedinnisfil.ca/tcs/maps/traffic-calming-map?reporting=true#marker-86485</p>	<p>Need traffic lights here. People speed along St. Johns and on the curve often cut into the pedestrian/bike lane. With the intersection being a bit hidden, especially at high speeds, turning off of 7th Line can be quite dangerous.</p>	<p>Speeding, Increase safety for pedestrians and cyclists, Reduce collisions</p>
<p>1515 Innisfil Beach Road, Innisfil, Ontario L9S 4B2, Canada</p> <p>http://www.getinvolvedinnisfil.ca/tcs/maps/traffic-calming-map?reporting=true#marker-86486</p>	<p>This whole area needs to change. Being caught on the tracks waiting for people to turn south onto 20th Sideroad is very dangerous, but very common. People trying to turn onto 20th Sideroad are always waiting for a long flow of traffic. Coming south on 20th Sideroad and trying to turn left onto IBR is incredibly challenging at times and very dangerous with traffic being bunched up so much there.</p>	<p>Increase access for all traffic modes, Reduce collisions</p>

Approximate Address of Marker Location Map Tool Link	Comment	Selected Reasons for Traffic Calming
2025 Webster Boulevard, Innisfil, Ontario L9S 0J8, Canada http://www.getinvolvedinnisfil.ca/tcs/maps/traffic-calming-map?reporting=true#marker-86487	Teh stretch of Webster from IBR to 7th Line is a racetrack for people. Need to add some speed bumps to slow people down. Very dangerous especially with how the bike lanes are now being right next to traffic.	Speeding, Increase safety for pedestrians and cyclists, Reduce need for police enforcement
45 Riley Street, Innisfil, Ontario L0L 1L0, Canada http://www.getinvolvedinnisfil.ca/tcs/maps/traffic-calming-map?reporting=true#marker-86488	People are frequently using this street as a speedway to bypass the congestion on 27 - especially during the summer and cottage country traffic picks up. This is a main crossing for kids going to the play ground and bus routes.	Speeding, Increase safety for pedestrians and cyclists, Reduce cut-through traffic
725 Hastings Avenue, Innisfil, Ontario L9S 1Z3, Canada http://www.getinvolvedinnisfil.ca/tcs/maps/traffic-calming-map?reporting=true#marker-86490	Excessive speeding There are no sidewalks and this is a 50kmh zone. I do not understand how these small streets with no sidewalks are the same speed limits as major roadways through town. IBR construction area is a 40kmh zone. makes no sense! I guess the construction workers are more important than our residents and children in our area. These areas should also be for local traffic only to reduce cut through traffic. When there is a back log on IBR at the park entrance Hastings Ave.becomes an alternate with increased traffic and drivers wanting to jump the line of traffic on IBR. Also when people get turned away from IBP, they race through Hastings or Lakelands at excessive speeds. We definitely need speed enforcement in the area.	Speeding, Increase safety for pedestrians and cyclists, Reduce cut-through traffic
624 Lakelands Avenue, Innisfil, Ontario L9S 4E6, Canada http://www.getinvolvedinnisfil.ca/tcs/maps/traffic-calming-map?reporting=true#marker-86492	This area requires more policing during peak periods at IBP. There is currently signage that reads NO STOPPING OR STANDING and people are using this area as a drop off and pick up area creating congestion and safety concerns for pedestrians. There needs to be more enforcement in this area. The signage is there but there is no enforcement except for an empty police vehicle at the park gate. Cut through traffic also needs to be addressed in this area. Lakelands should be for local traffic only from this point to decrease cut through traffic and reduce congestion for pedestrian safety. There are no sidewalks in this area making it very difficult to navigate through the area in peak times at the park. A proper drop off area needs to be created for the park.	Speeding, Increase safety for pedestrians and cyclists, Reduce cut-through traffic
19 Riley Street, Cookstown, Ontario L0L 1L0, Canada http://www.getinvolvedinnisfil.ca/tcs/maps/traffic-calming-map?reporting=true#marker-86495	Motorists often use this street due to the traffic on Highway 27 and Highway 89 especially during weekends in the summer. Many children live in this neighborhood who ride their bikes and walk to the park on this street.	Speeding, Increase safety for pedestrians and cyclists, Reduce cut-through traffic

Approximate Address of Marker Location Map Tool Link	Comment	Selected Reasons for Traffic Calming
25 Big Bay Point Road, Innisfil, Ontario L9S 2X4, Canada http://www.getinvolvedinnisfil.ca/tcs/maps/traffic-calming-map?reporting=true#marker-86515	All of the streets in Big Bay Point are prone to speeding, all of the side streets are narrow. People walking, biking and driving are all trying to use the the same 20 feet or less of road width. Add in parked cars and there is a very high risk of an incident where someone could be injured. The town needs to take a serious look at the conditions here. Just walking in the area is hazardous, I have personally almost been hit numerous times while walking, by speeding drivers who pass to close.	Speeding, Increase safety for pedestrians and cyclists
1258 Maple Road, Innisfil, Ontario L9S 4R7, Canada http://www.getinvolvedinnisfil.ca/tcs/maps/traffic-calming-map?reporting=true#marker-86523	Entrance to Belle Aire Beach is located here. Vehicles are often observed speeding by this location.	Speeding, Increase safety for pedestrians and cyclists
725 13th Line, Innisfil, Ontario L9S 3C5, Canada http://www.getinvolvedinnisfil.ca/tcs/maps/traffic-calming-map?reporting=true#marker-86547	Cars are not going 60km/hr from 25th to the FH entrance. Most are doing 80+. The hidden entrance to FH is an issue. Leaving FH it is hard to see cars coming from the east. And a lot of visitors miss the entrance and do a u turn on the 13th line which is very dangerous as you come over the hill there is a car sideways on the road ahead.	Speeding, Streetscape improvements, Reduce need for police enforcement
955 Big Bay Point Road, Innisfil, Ontario L9S 2N6, Canada http://www.getinvolvedinnisfil.ca/tcs/maps/traffic-calming-map?reporting=true#marker-86548	Speed is excessive on BBP road	Speeding, Reduce need for police enforcement
58 Queen Street, Innisfil, Ontario L0L 1L0, Canada http://www.getinvolvedinnisfil.ca/tcs/maps/traffic-calming-map?reporting=true#marker-86628	This spot of highway has people coming into town at 80 and gearing up at 80. It's hard to get out of the parking lot. It's extra hard when the Honda traffic is out. There needs to be stop lights so cars can exit both the Foodland and HomeHardware parking lots safely.	Speeding, Increase access for all traffic modes
14 King Street South, Cookstown, Ontario L0L 1L0, Canada http://www.getinvolvedinnisfil.ca/tcs/maps/traffic-calming-map?reporting=true#marker-86629	During the summer on Sunday nights people are speeding after the lights to get home. They seem to be doing 60 in a 40 zone.	Speeding

Approximate Address of Marker Location Map Tool Link	Comment	Selected Reasons for Traffic Calming
<p>20 King Street South, Cookstown, Ontario L0L 1L0, Canada</p> <p>http://www.getinvolvedinnisfil.ca/tcs/maps/traffic-calming-map?reporting=true#marker-86630</p>	<p>On Friday and Saturday's in the summer or if there is an accident on hwy 400 going north traffic from the lights at 89 and 27 are backed up out of town. There have been a few accidents on hwy 27 and Victoria street of cars trying to cross 27 going West from Victoria and being hit by cars going south on 27. The lights on weekends should be shorter so that traffic can go through. Unsure of light timing but I have sat at the intersection of Hwy 27 and 89 for more than 3 minutes waiting for the light to change when there is no traffic going on 89.</p>	<p>Increase access for all traffic modes, Reduce collisions</p>
<p>438 Mapleview Drive, Innisfil, Ontario L9S 2Y9, Canada</p> <p>http://www.getinvolvedinnisfil.ca/tcs/maps/traffic-calming-map?reporting=true#marker-86687</p>	<p>Excessive speeding from the beach all the way to 25th sideroad.</p>	<p>Speeding, Increase safety for pedestrians and cyclists, Reduce cut-through traffic</p>
<p>3288 Sideroad 25, Innisfil, Ontario L9S 3E1, Canada</p> <p>http://www.getinvolvedinnisfil.ca/tcs/maps/traffic-calming-map?reporting=true#marker-86688</p>	<p>Running of stop signs at 25th and 20th.</p>	<p>Increase safety for pedestrians and cyclists</p>
<p>1032 Lebanon Drive, Innisfil, Ontario L9S 2B7, Canada</p> <p>http://www.getinvolvedinnisfil.ca/tcs/maps/traffic-calming-map?reporting=true#marker-86745</p>	<p>Speeds are to high down Lebanon. We need summer time speed bumps.</p>	<p>Speeding</p>
<p>1021 Lebanon Drive, Innisfil, Ontario L9S 2B7, Canada</p> <p>http://www.getinvolvedinnisfil.ca/tcs/maps/traffic-calming-map?reporting=true#marker-86746</p>	<p>Speeding short cut to 25th side road Catholic school and Tim Hortons no sidewalks on street. Eventually someone will get hit</p>	<p>Speeding, Increase safety for pedestrians and cyclists, Reduce collisions</p>
<p>2317 Sandy Trail, Innisfil, Ontario L9S 2G1, Canada</p> <p>http://www.getinvolvedinnisfil.ca/tcs/maps/traffic-calming-map?reporting=true#marker-87534</p>	<p>On Sandy Trail...vehicles speeding, along with ATV's using this street as a back & forth trail. Also this street is used as a by-pass, especially by those accessing the Petro at William St. and 25th Side road.</p>	<p>Speeding, Increase safety for pedestrians and cyclists, Reduce cut-through traffic</p>

Approximate Address of Marker Location Map Tool Link	Comment	Selected Reasons for Traffic Calming
<p>3619 Friday Drive, Innisfil, Ontario L9S 3C8, Canada</p> <p>http://www.getinvolvedinnisfil.ca/tcs/maps/traffic-calming-map?reporting=true#marker-93870</p>	<p>Many issues, the entrance to Friday Drive is far too wide, people coming out on to the 13th to go west treat it like a yield and never stop** to look for traffic. People turning left into Friday Drive cut their corner going towards oncoming traffic on Friday Dr without checking for oncoming traffic. I've seen many cars nearly hit traffic coming out of Friday Dr due to this. If you check Google Maps satellite view you can see the exact type of cutting in turns I'm referring to.</p> <p>There should be islands added on the 13th & Friday Drive to prevent people from cutting in on their left turns and the entrance to Friday Drive should not be made this wide as people stop 2 car lengths past the stop sign (behind the stop sign you can see cars coming up the hill) with their vehicles facing completely west treating it like a yield where you can no longer see oncoming traffic which at this point their own car frames block the view of oncoming traffic. This road is also a 30km/hr and not treated as such.</p> <p>To make matters worse visitors past the entrance and decide it's safe to do a 3-point turn at the bottom of the hill on the 13th even in the winter with icy roads making it very hard to stop in time. There should be signage to prevent this. This entrance is extremely unsafe. I almost get hit daily from drivers coming out of Friday Dr that are failing to stop and can barely stop in time to avoid a collision while coming out of a 30km/hr road so clearly not driving 30km/hr. The road needs to be made more narrow, and islands need to be added to prevent cutting in their left turns too early which prevents people from being able to check oncoming traffic.</p> <p>This entrance should have NEVER been placed here, it's a serious concern for everyone's safety.***</p> <p>Lastly there are cars that park at the very top of the hill to place signage for things in Friday Harbour in front of Friday Dr on the south side of the 13th. It's an extremely dangerous place to park a car on the road as you cannot safely drive around them on this hill without potential for an accident. There should be signage preventing parking and no advertisement signs should be allowed to be placed here due to the serious safety concern.</p> <p>The overall placement of this entrance shows poor planning and lack of care for safety from the developers.</p>	<p>Speeding, Increase safety for pedestrians and cyclists, Streetscape improvements, Reduce need for police enforcement, Reduce cut-through traffic</p>
<p>2317 Sandy Trail, Innisfil, Ontario L9S 2G1, Canada</p> <p>http://www.getinvolvedinnisfil.ca/tcs/maps/traffic-calming-map?reporting=true#marker-87535</p>	<p>On Sandy Trail...vehicles speeding, along with ATV's using this street as a back & forth trail.</p> <p>Also this street is used as a by-pass, especially by those accessing the Petro at William St. and 25th Side road.</p>	<p>Speeding, Increase safety for pedestrians and cyclists, Reduce cut-through traffic</p>

Approximate Address of Marker Location Map Tool Link	Comment	Selected Reasons for Traffic Calming
1258 Maple Road, Innisfil, Ontario L0L 1C0, Canada http://www.getinvolvedinnisfil.ca/tcs/maps/traffic-calming-map?reporting=true#marker-93597	Drivers frequently exceed the speed limit by 20km/h+; children and seniors use this area and are at risk of injury/death; the beach needs a crosswalk!	Speeding, Increase safety for pedestrians and cyclists
255 Nelson Crescent, Innisfil, Ontario L9S 3B9, Canada http://www.getinvolvedinnisfil.ca/tcs/maps/traffic-calming-map?reporting=true#marker-93682	Since the development of Innisfil Estates the traffic has increased dramatically on our street as Lynn and Nelson are used as major access into the new development. Cars continually speed on this street. We understand stop signs are not an option but why can the town not install removable speed bumps.	Speeding, Increase safety for pedestrians and cyclists, Increase access for all traffic modes
1174 Shore Acres Drive, Gilford, Ontario L0L 1R0, Canada http://www.getinvolvedinnisfil.ca/tcs/maps/traffic-calming-map?reporting=true#marker-94082	Even with the new road markings, consistent speeding east and west bound well over 50 KM. Someone is going to get hurt.	Speeding
1174 Shore Acres Drive, Gilford, Ontario L0L 1R0, Canada http://www.getinvolvedinnisfil.ca/tcs/maps/traffic-calming-map?reporting=true#marker-94083	Sitting out front on a Friday night watching multiple cars driving excessive speeds. Mostly heading west. 50km/hr speed limit painted on road does not seem to be affecting driver behaviour. Need removable speed bumps in place May through October. Worth noting that is speed bumps ever go in on Shore Acres those people who want to speed will likely move over to Travelling on Gilford Rd so their traffic would likely increase. Thank you.	Speeding
5088 County Road 27, Innisfil, Ontario L0L 1L0, Canada http://www.getinvolvedinnisfil.ca/tcs/maps/traffic-calming-map?reporting=true#marker-94302	We need more visible, functional, and productive traffic calming measures before the school. Traffic (especially large trucks) often speed down Hwy 27 with little knowledge or regard to the school. We need lane narrowing, better markers, flashing lights etc ...Before someone gets seriously injured.	Speeding, Increase safety for pedestrians and cyclists, Reduce collisions
1 Church Street, Cookstown, Ontario L0L 1L0, Canada http://www.getinvolvedinnisfil.ca/tcs/maps/traffic-calming-map?reporting=true#marker-94303	Better traffic management at this intersection in general. Red light cameras, coordinated advanced green for all directions, better timing on the lights during rush hour to minimize people running the lights and more police presence, tickets. The intersection is hazardous and someone is going to be seriously injured.	Speeding, Increase safety for pedestrians and cyclists, Reduce collisions, Reduce cut-through traffic

Approximate Address of Marker Location Map Tool Link	Comment	Selected Reasons for Traffic Calming
<p>1973 Jans Boulevard, Innisfil, Ontario L9S 5A5, Canada</p> <p>http://www.getinvolvedinnisfil.ca/tcs/maps/traffic-calming-map?reporting=true#marker-94672</p>	<p>This street is a race track at all hours of the day and is rarely, if ever policed. Being a main route for kids walking, biking and other wise traveling to area schools you would think the town would care a little more.</p>	<p>Speeding, Increase safety for pedestrians and cyclists</p>
<p>1224 Belle Aire Beach Road, Innisfil, Ontario L0L 1W0, Canada</p> <p>http://www.getinvolvedinnisfil.ca/tcs/maps/traffic-calming-map?reporting=true#marker-94837</p>	<p>Traffic calming needs to be extended as speeders start as soon as they turn onto Belle Aire from 20th and head east bound on Belle Aire Beach Road towards Lake Simcoe, from cars, trucks, SUVs, delivery trucks, construction trucks to ATVs go over 100 km/h as I have followed an ATV out of concern. I have a Nest Camera and it catches many speeders during any given day. I walk this street with my dogs and have no where else to walk and it's unsafe with vehicles going this speed. It's 50km/h and no one follows this speed.</p>	<p>Speeding, Increase safety for pedestrians and cyclists, Reduce cut-through traffic</p>

**Innisfil Traffic Calming Project
Consultation Summary**

Attachment F:

Online Survey Results

Traffic Calming Pilot Project Survey

SURVEY RESPONSE REPORT

28 March 2018 - 02 February 2023

PROJECT NAME:

Traffic Calming Strategy



REGISTRATION QUESTIONS

Q1 First name and Last name

Redacted

Redacted

Redacted

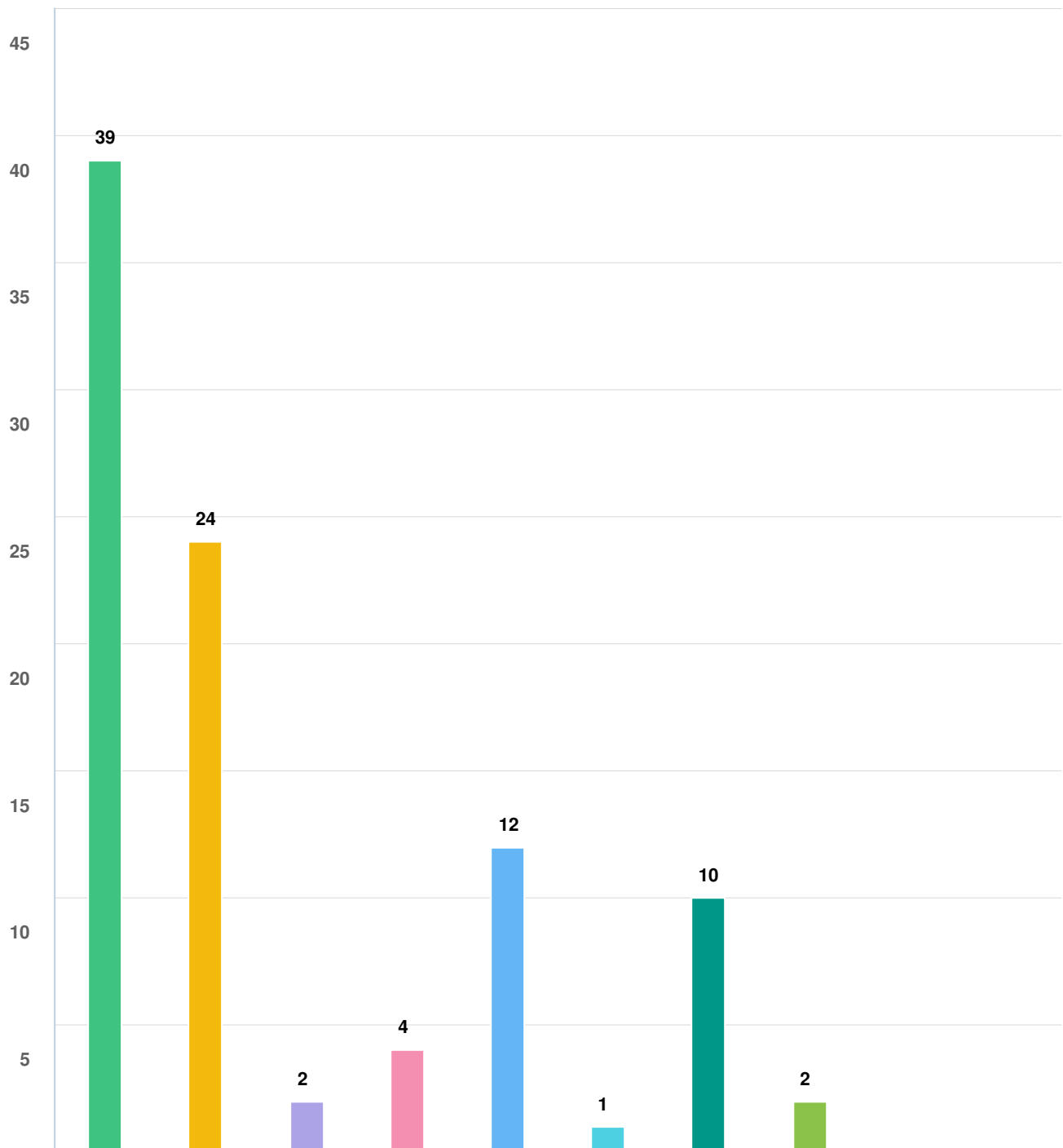
Redacted

Redacted

Mandatory Question (56 response(s))

Question type: Single Line Question

Q2 What area of Innisfil are you located in or closest to?



Question options

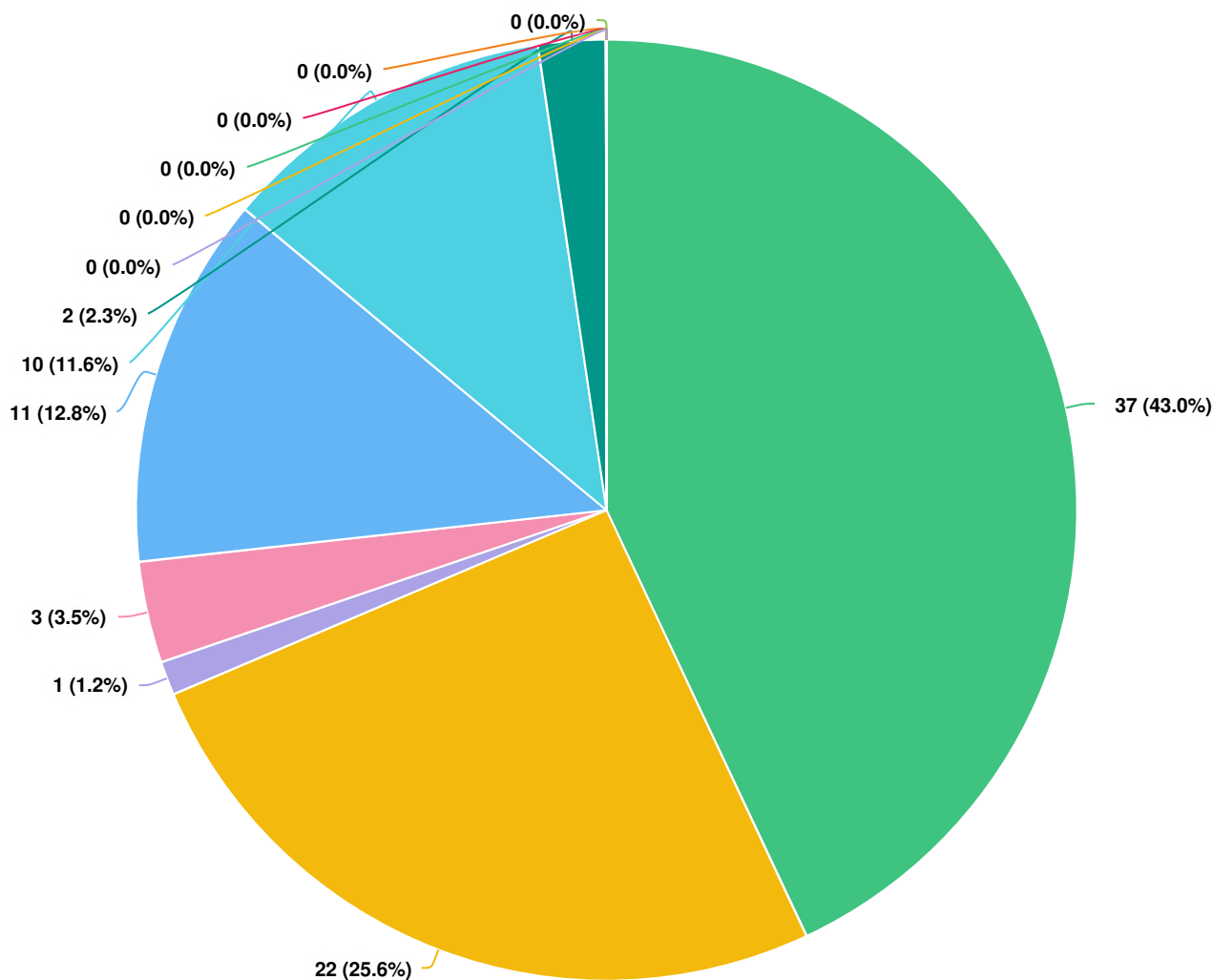
- Alcona ● Belle Ewart ● Churchill ● Cookstown ● Gilford ● Innisfil Heights ● Lefroy ● Stroud
- Big Bay Point ● Sandycove

Mandatory Question (86 response(s))
 Question type: Checkbox Question



SURVEY QUESTIONS

Q1 What area of Innisfil are you located?

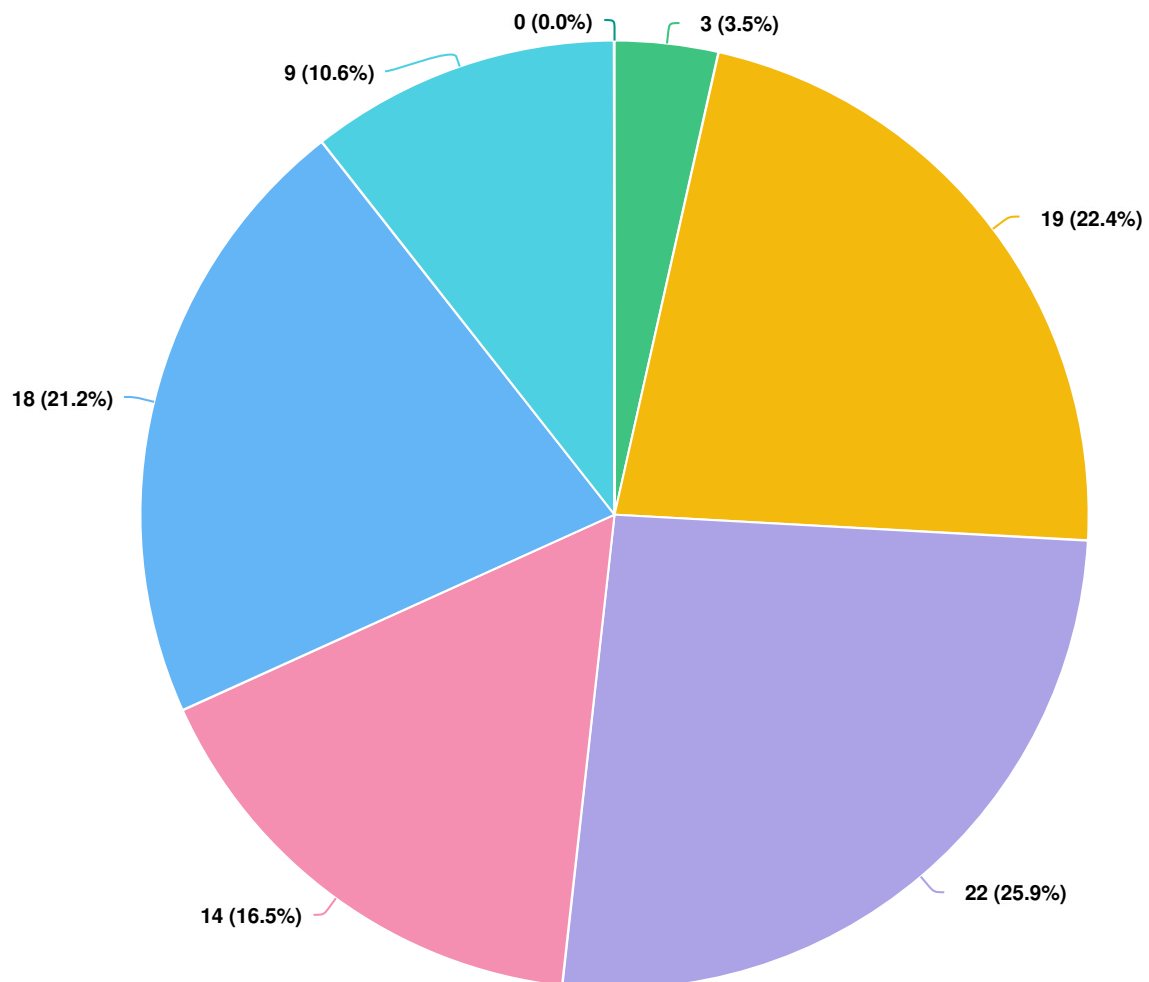


Question options

- Alcona Belle Ewart Churchill Cookstown Gilford Lefroy Stroud Barclay
- Big Bay Point Friday Harbour Innisfil Heights Sandycove I am not a resident of Innisfil

Optional question (86 response(s), 0 skipped)
Question type: Radio Button Question

Q2 What is your age?

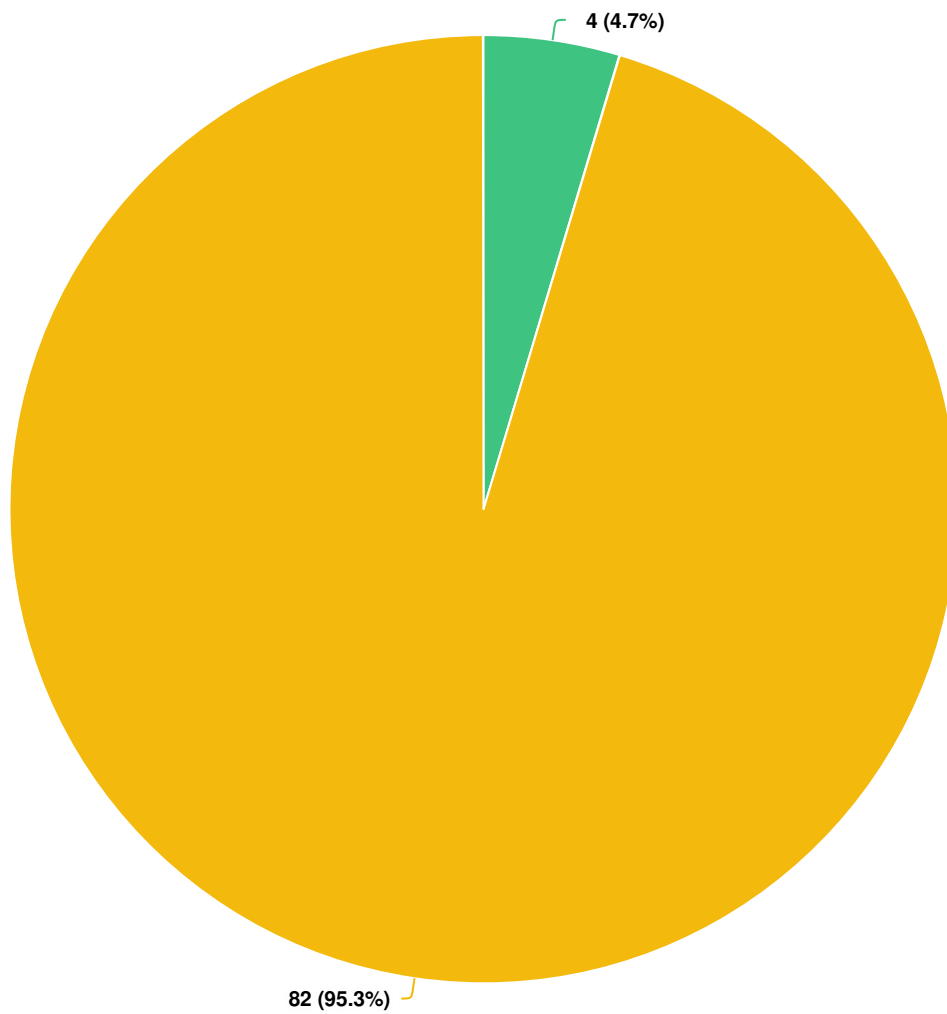


Question options

- 20-29 years old
- 30-39 years old
- 40-49 years old
- 50-59 years old
- 60-69 years old
- 70+ years old
- 19 years and under

Optional question (85 response(s), 1 skipped)
Question type: Radio Button Question

Q3 Do you live on Shore Acres Drive between the railroad tracks and Everton Drive?

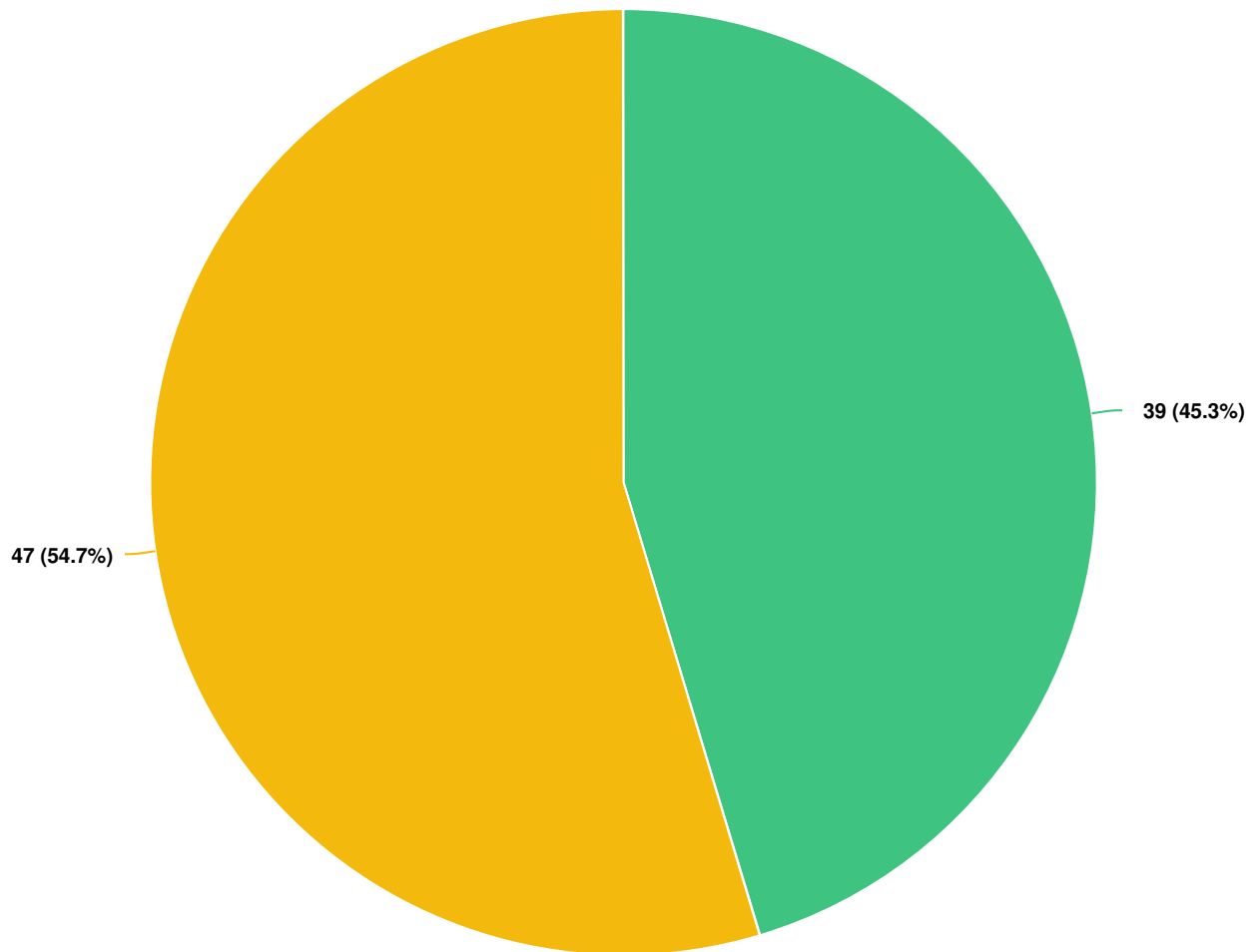


Question options

- Yes
- No

Optional question (86 response(s), 0 skipped)
Question type: Radio Button Question

Q4 Between August 26 and October 11, have you driven along this stretch of Shore Acres Drive or been a passenger in a vehicle doing so?

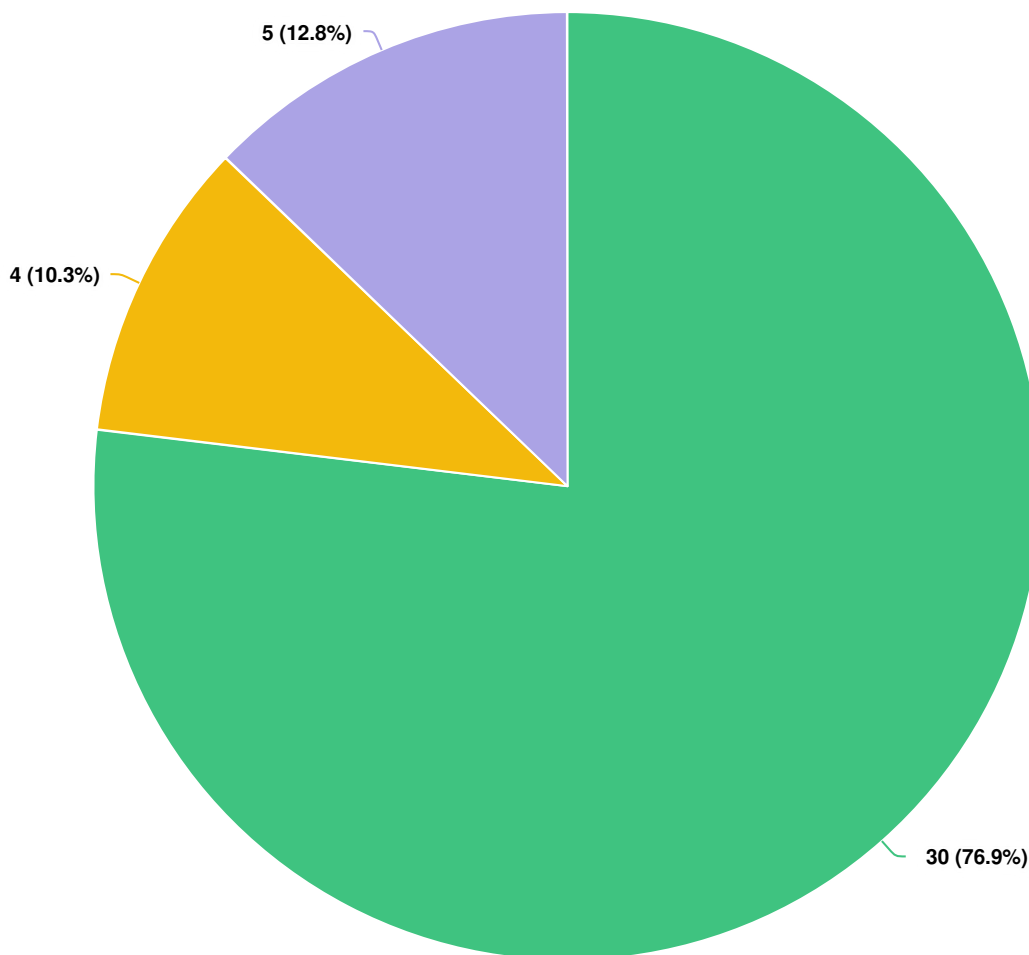


Question options

- Yes
- No

Optional question (86 response(s), 0 skipped)
Question type: Radio Button Question

Q5 In these instances, were you usually the driver or the passenger?

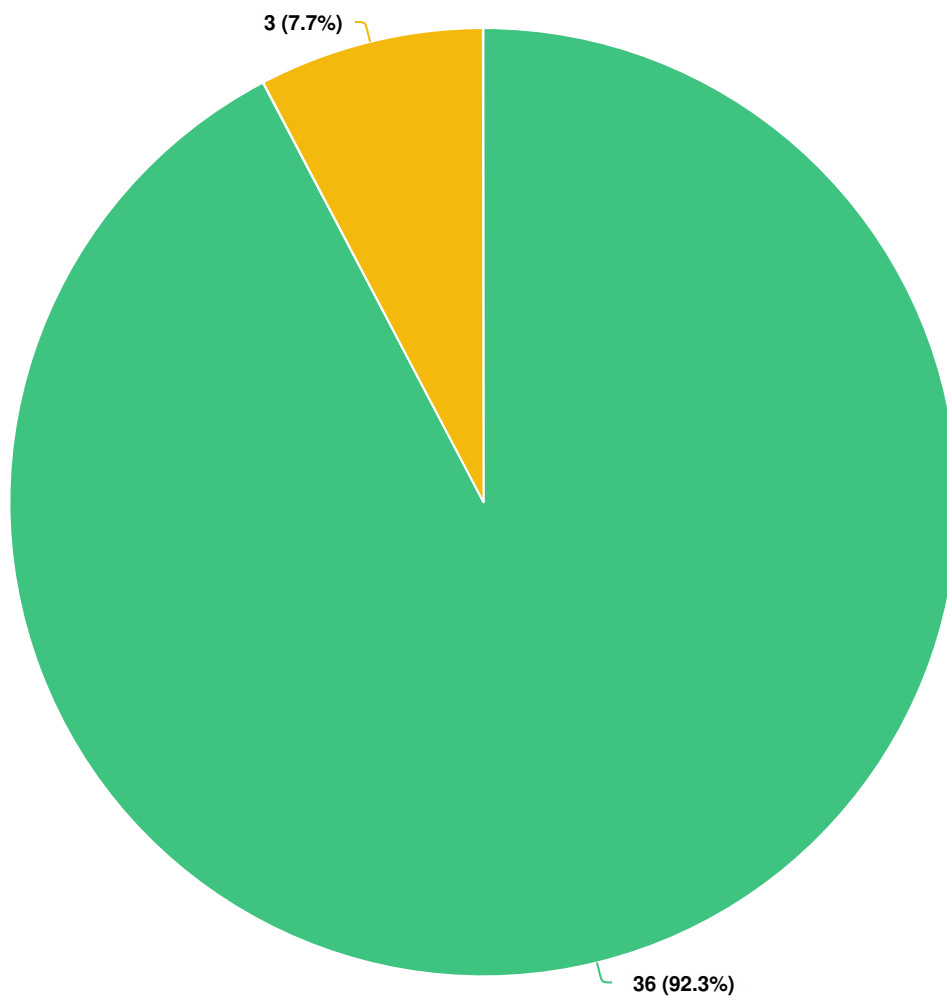


Question options

- Usually the driver
- Usually the passenger
- Equally both

Optional question (39 response(s), 47 skipped)
Question type: Radio Button Question

Q6 Did you notice the pavement markings in the pilot area?

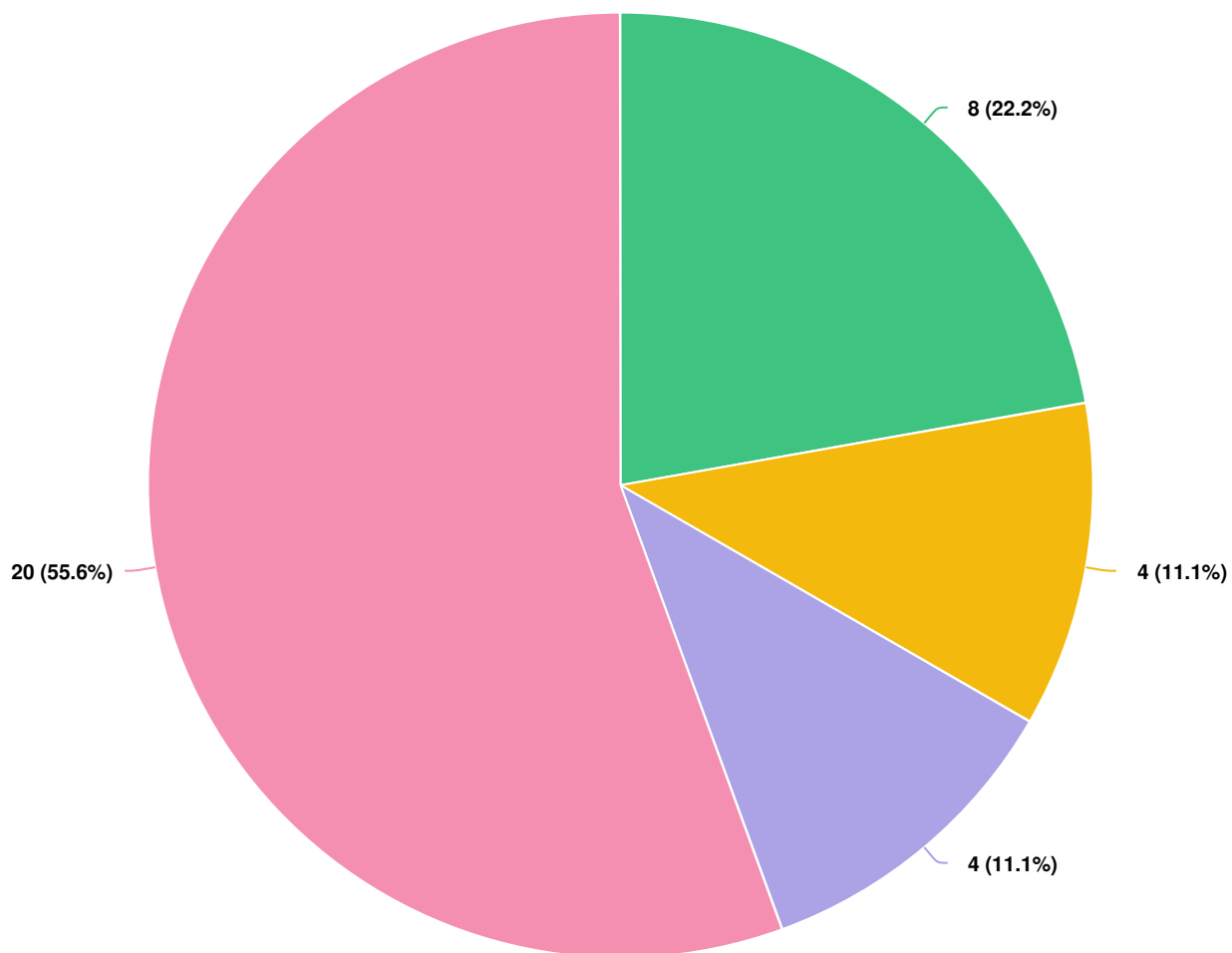


Question options

- Yes
- No

*Optional question (39 response(s), 47 skipped)
Question type: Radio Button Question*

Q7 In the vehicle you were in, did you feel that the measure encouraged you (or the driver, if you were a passenger) to reduce the vehicle's speed? Please select the answer that most applies.

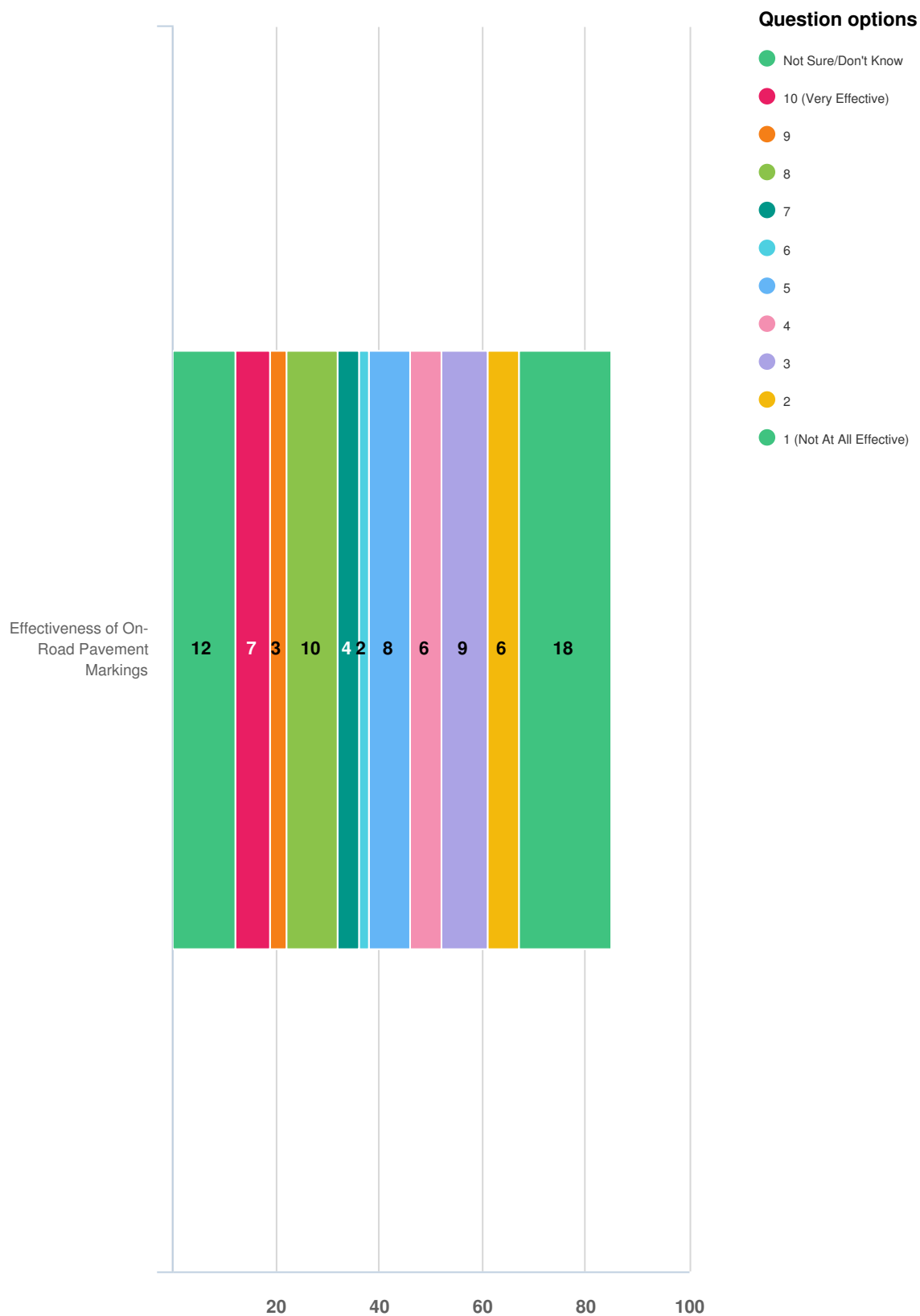


Question options

- Yes - I/we was going above the speed limit and I/we reduced my/our speed
- Yes - I/we was going below the speed limit, and I/we reduced my/our speed further
- No - I/we was going above the speed limit but was not encouraged to reduce my/our speed
- No - I/we was not speeding and did not need to reduce my/our speed

Optional question (36 response(s), 50 skipped)
Question type: Radio Button Question

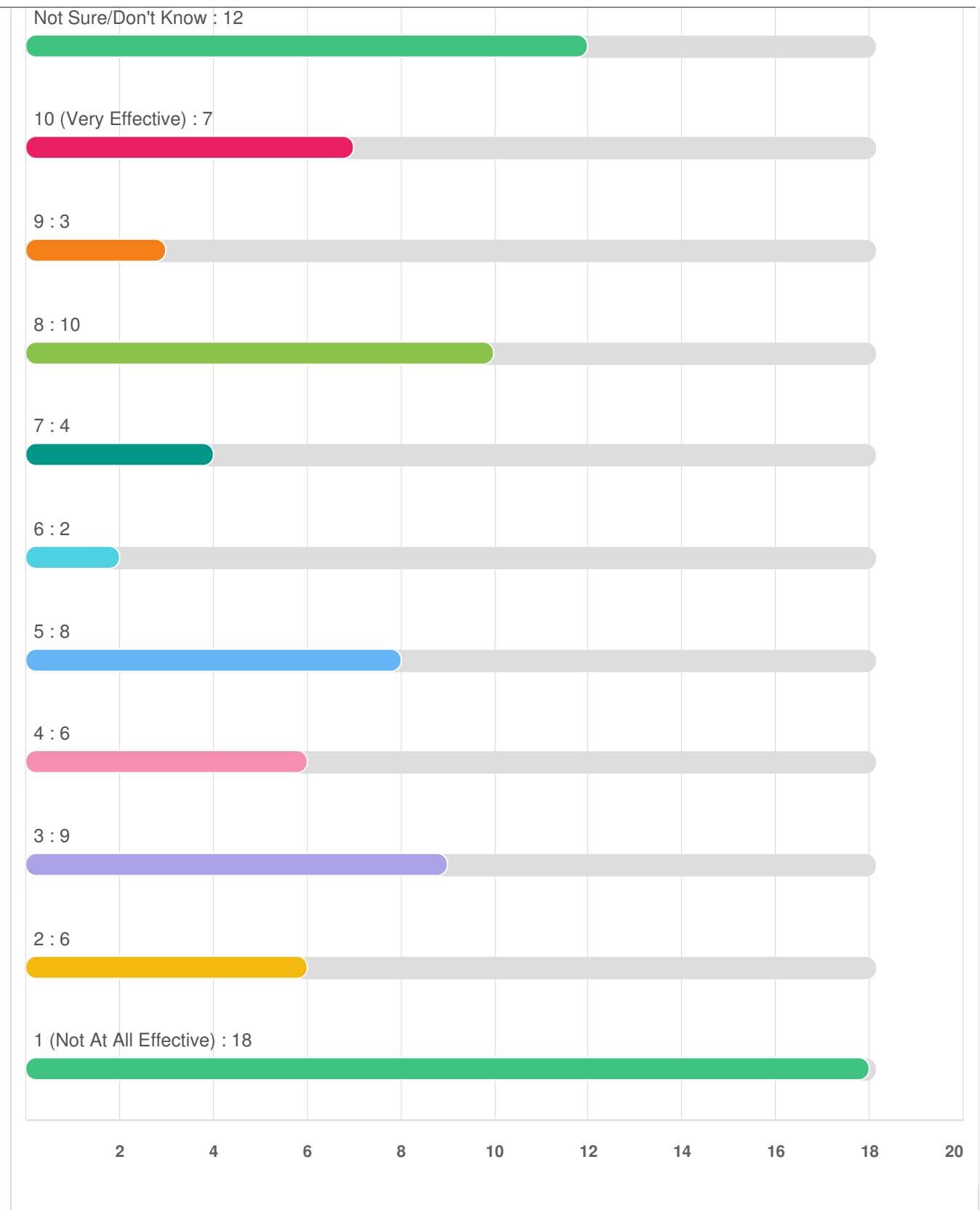
Q8 On a scale of 1 to 10, how effective do you feel these type of pavement markings as a traffic calming measure would be at improving traffic safety, where 1 is not at all effective and 10 is very effective?



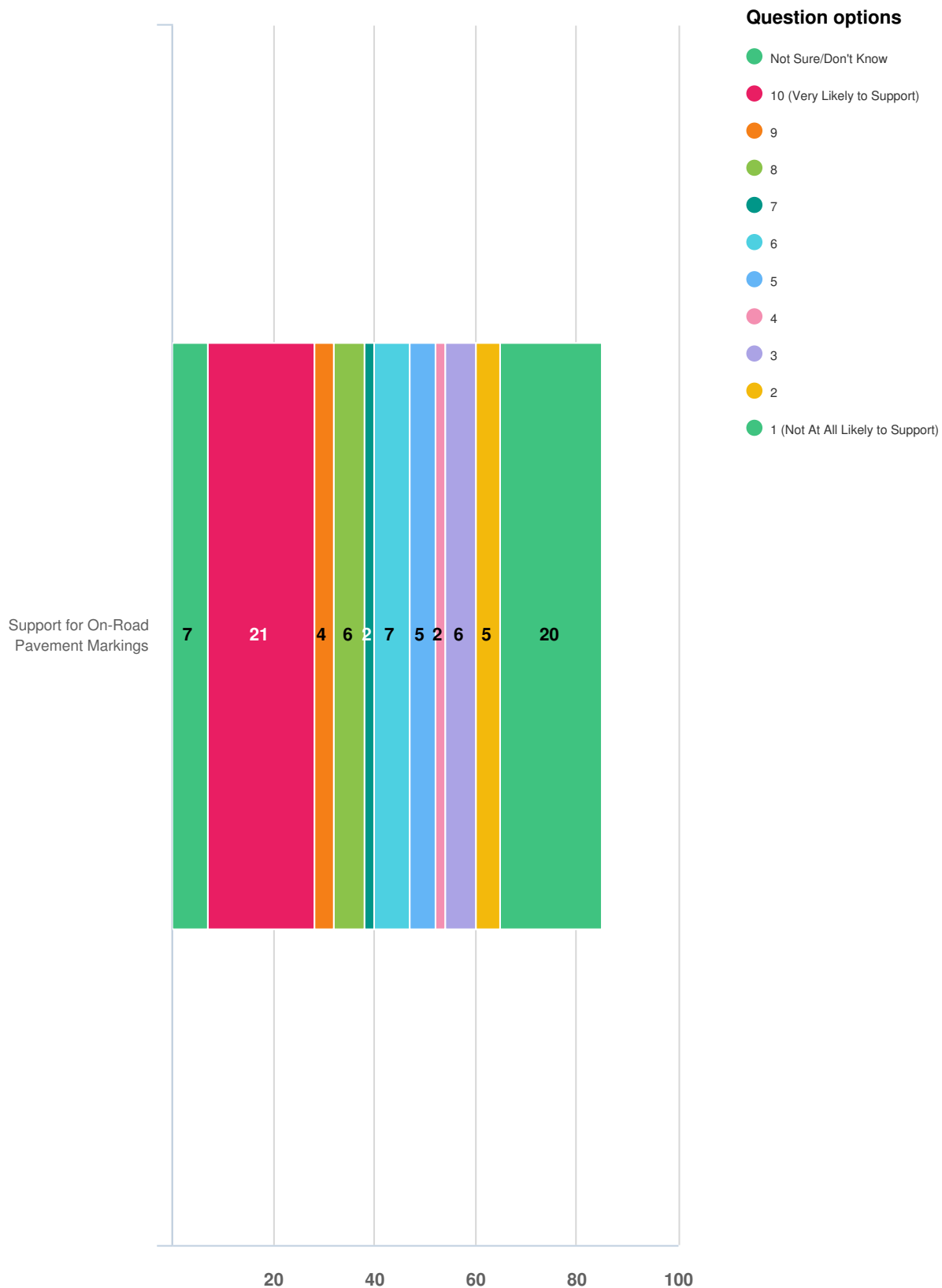
Optional question (85 response(s), 1 skipped)
Question type: Likert Question

Q8 | On a scale of 1 to 10, how effective do you feel these type of pavement markings as a traffic calming measure would be at improving traffic safety, where 1 is not at all effective and 10 is very effective?

Effectiveness of On-Road Pavement Markings



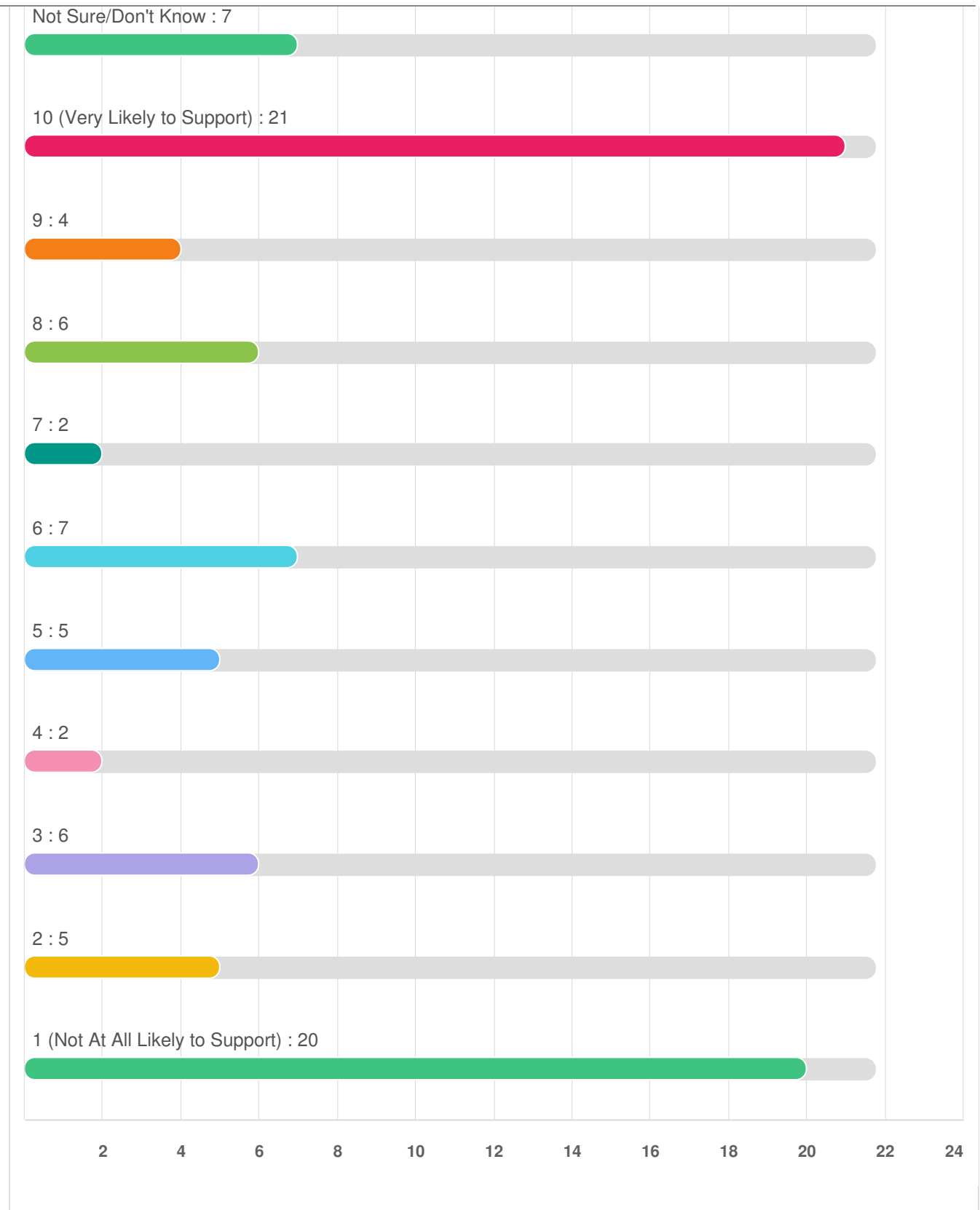
Q9 On a scale of 1 to 10, how likely are you to support such a traffic calming measure if it were to be included in your neighbourhood, where 1 is not at all likely and 10 is very likely?



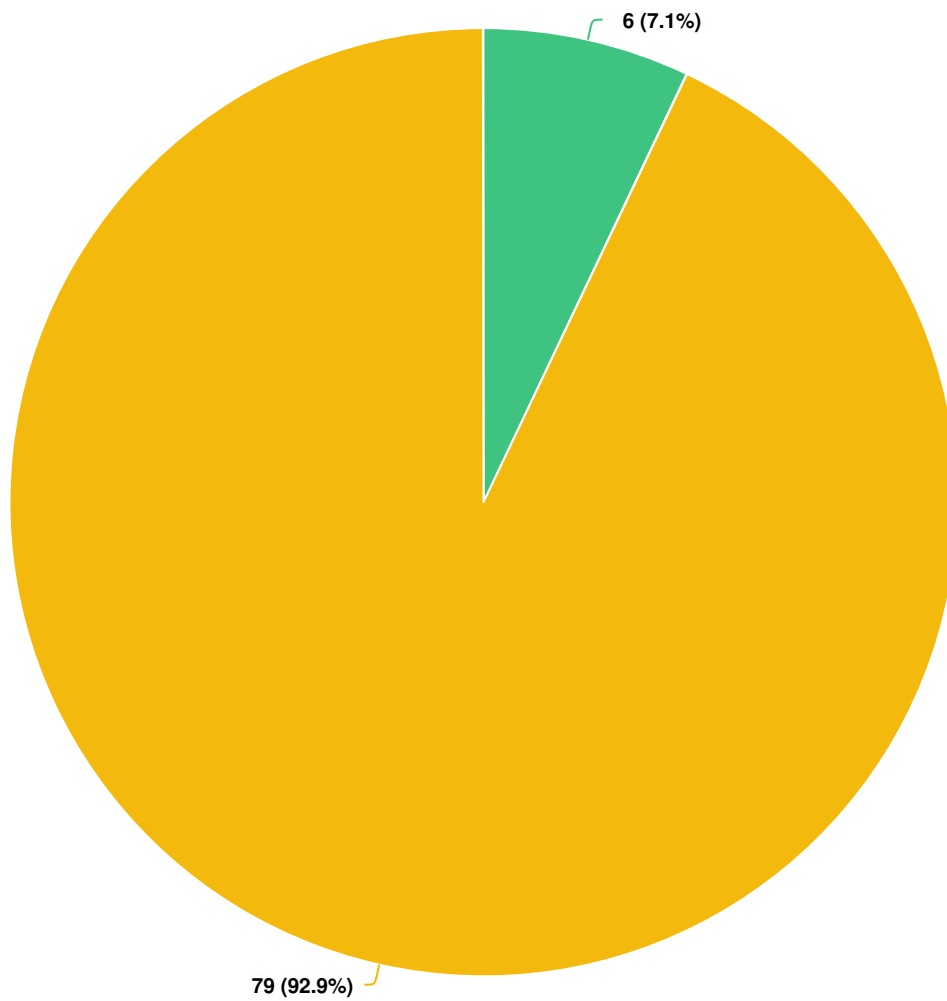
Optional question (85 response(s), 1 skipped)
 Question type: Likert Question

Q9 | On a scale of 1 to 10, how likely are you to support such a traffic calming measure if it were to be included in your neighbourhood, where 1 is not at all likely and 10 is very likely?

Support for On-Road Pavement Markings



Q10 Do you live on Belle Aire Beach Road between Willow Street and Maple Road?

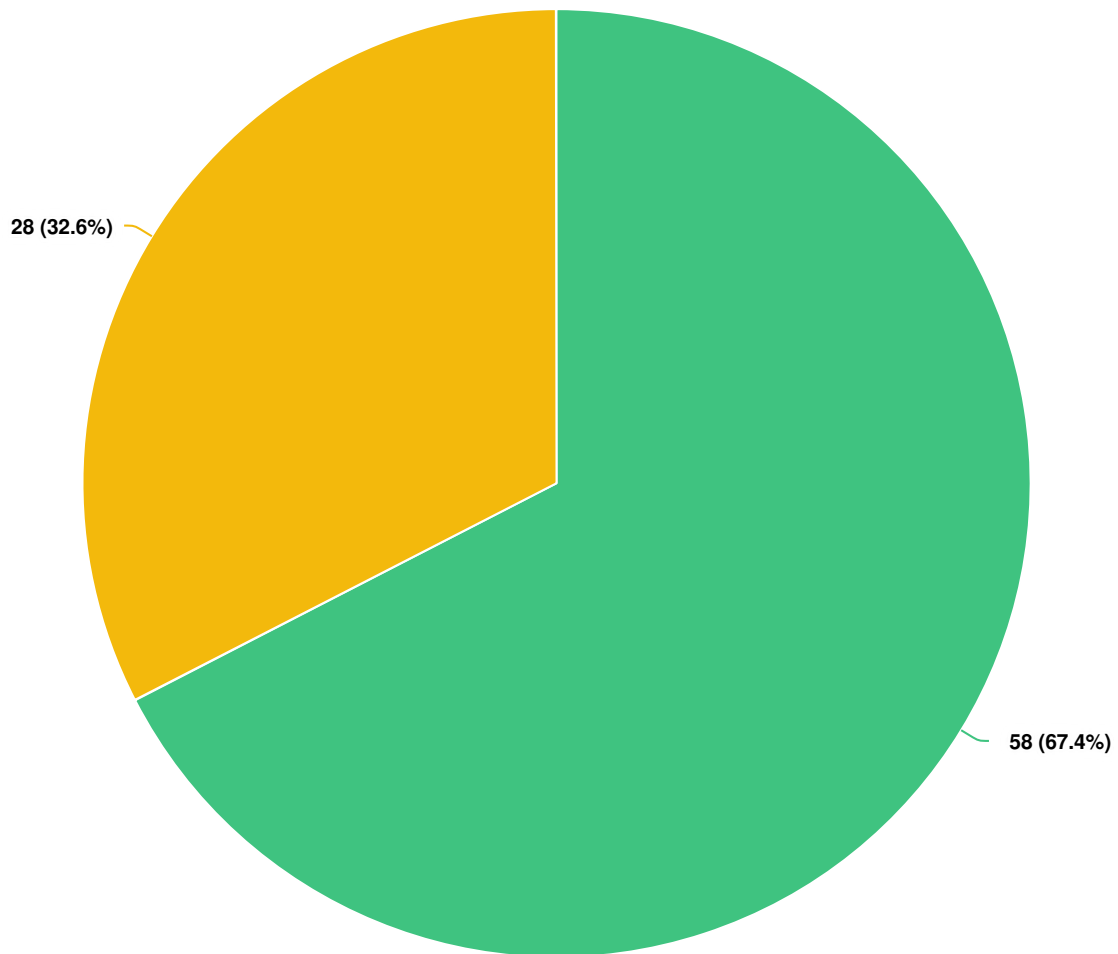


Question options

- No
- Yes

*Optional question (85 response(s), 1 skipped)
Question type: Radio Button Question*

Q11 | Between August 26 and October 11, have you driven along this stretch of Belle Aire Beach Road or been a passenger in a vehicle doing so?

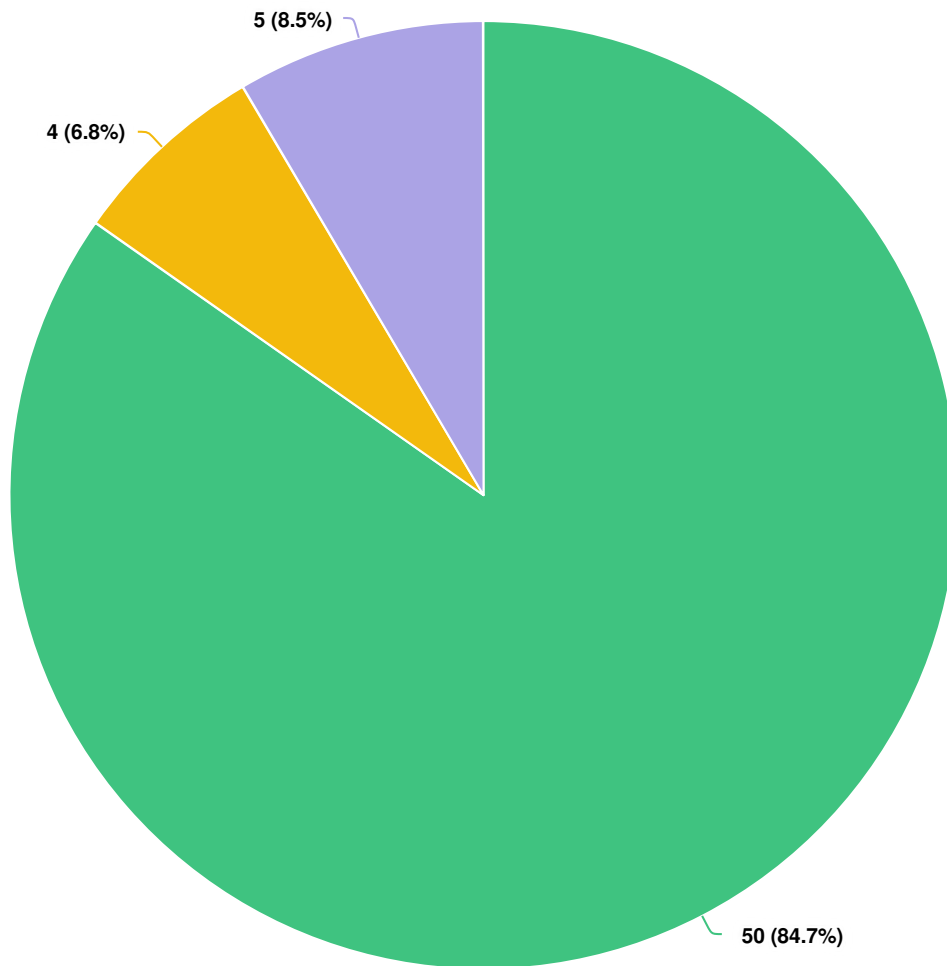


Question options

- No
- Yes

Optional question (86 response(s), 0 skipped)
Question type: Radio Button Question

Q12 In these instances, were you usually the driver or the passenger?

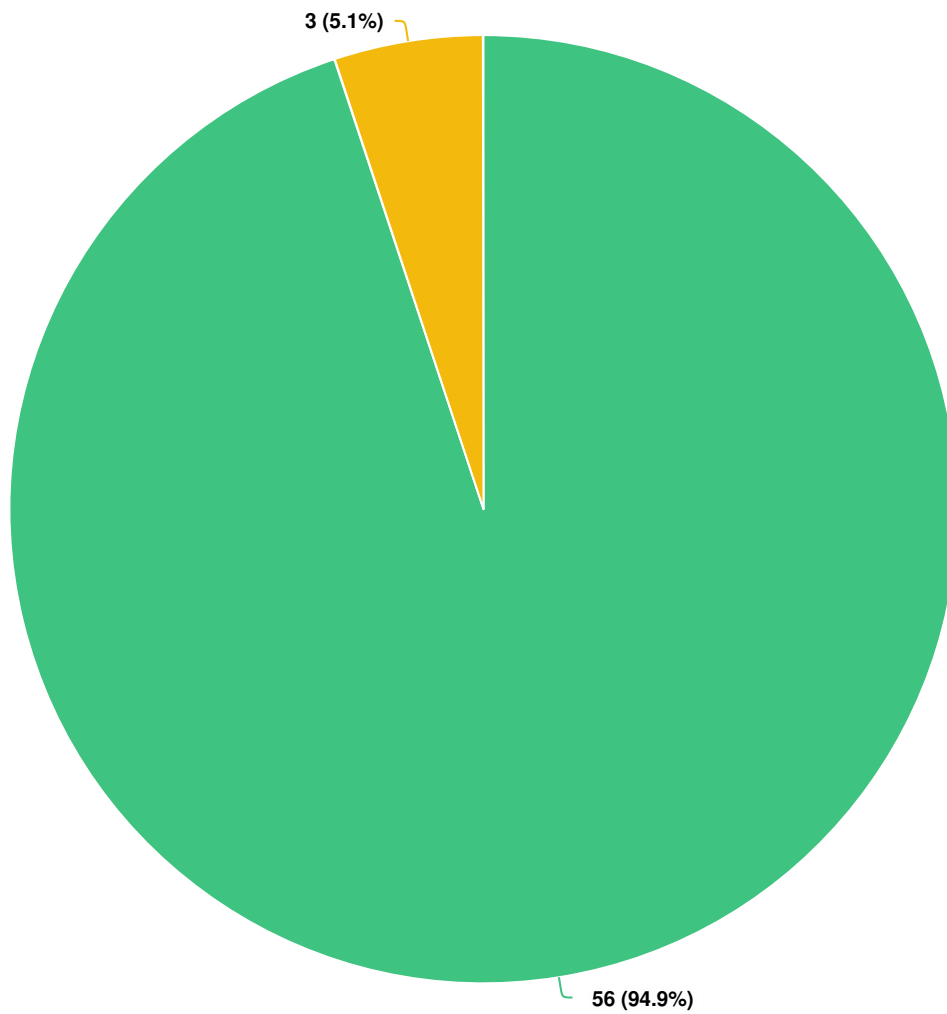


Question options

- Equally both
- Usually the passenger
- Usually the driver

Optional question (59 response(s), 27 skipped)
Question type: Radio Button Question

Q13 Did you notice the chicanes in the pilot area?

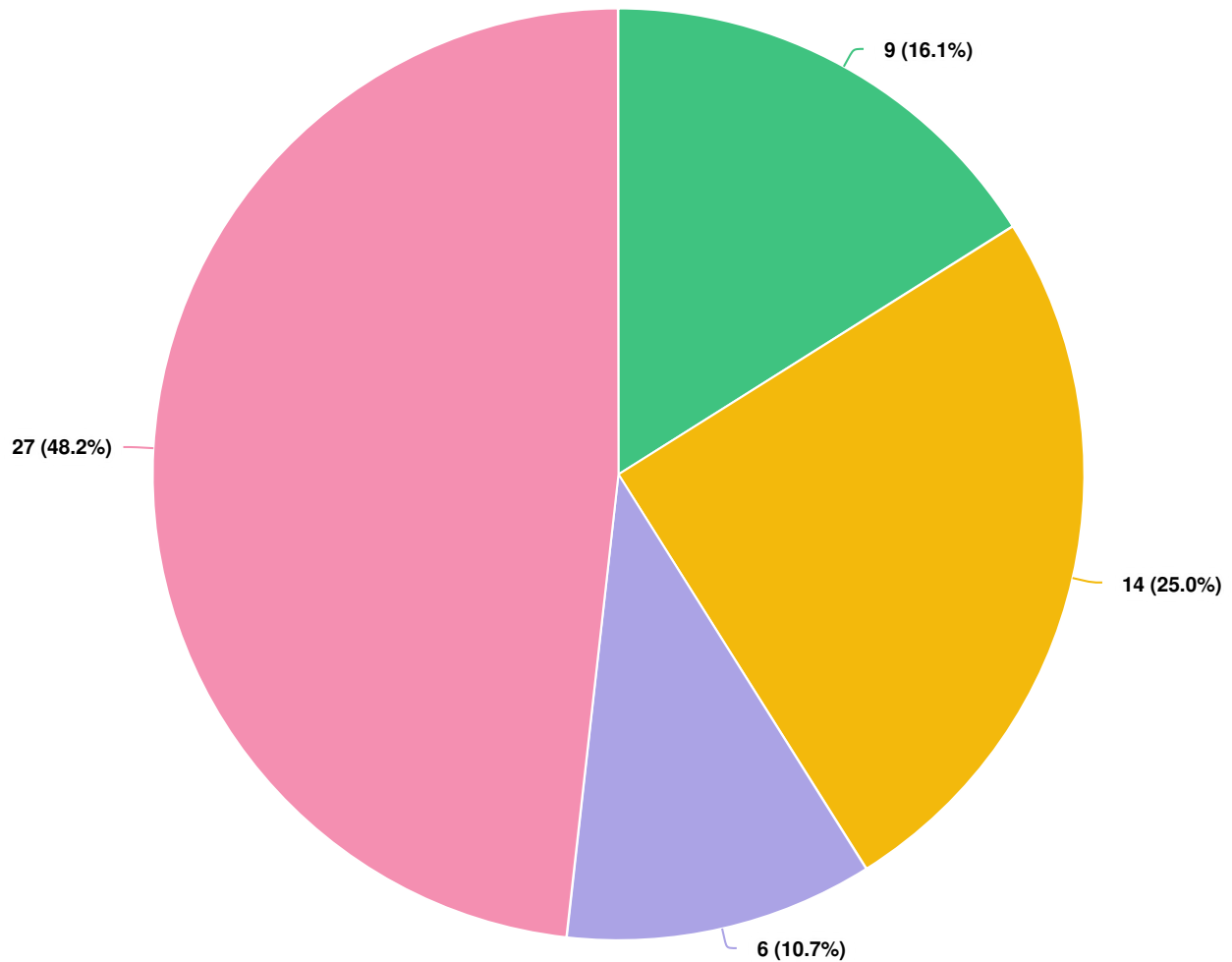


Question options

- No
- Yes

*Optional question (59 response(s), 27 skipped)
Question type: Radio Button Question*

Q14 In the vehicle you were in, did you feel that the measure encouraged you (or the driver, if you were a passenger) to reduce the vehicle's speed? Please select the answer that most applies.

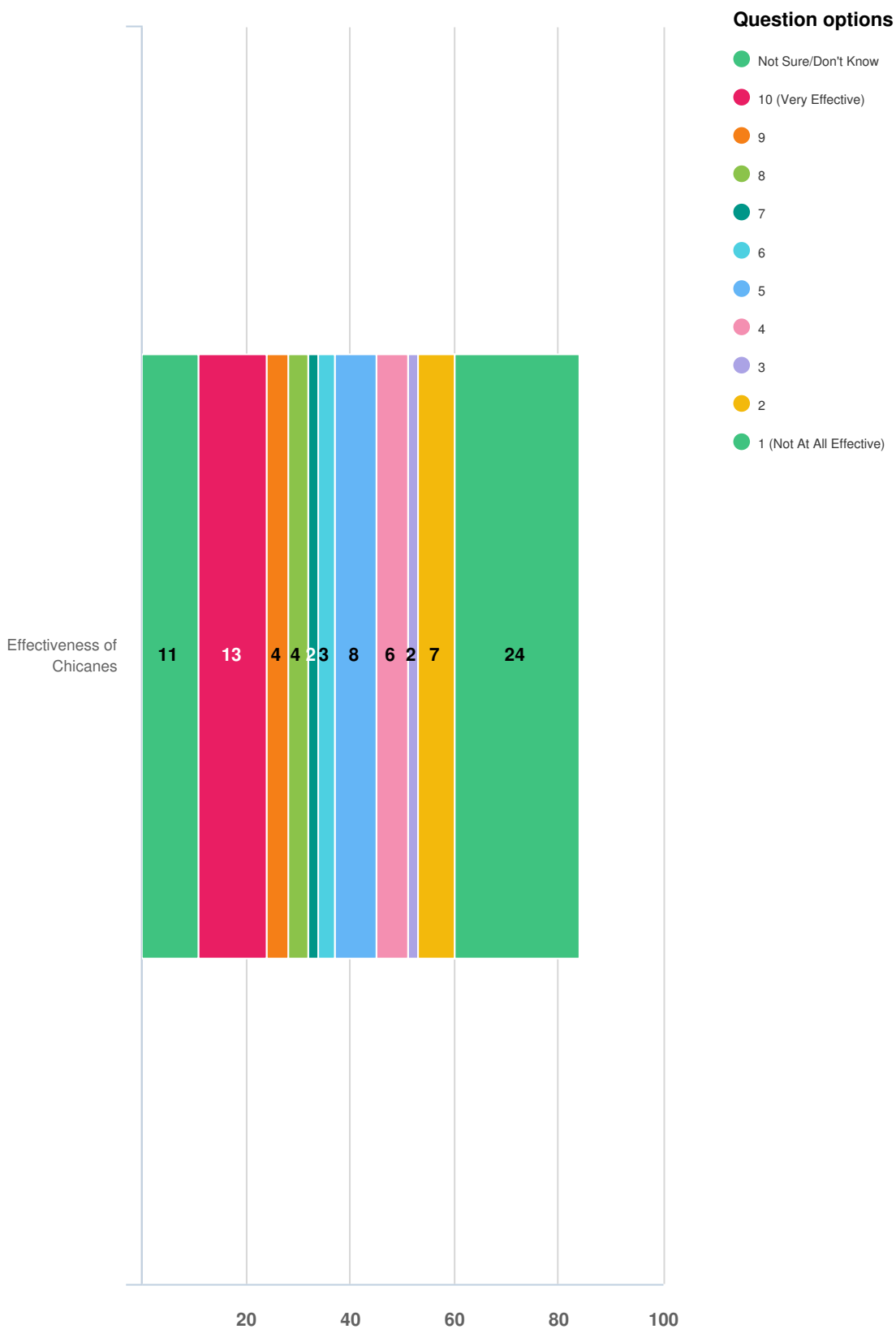


Question options

- No - I/we was not speeding and did not need to reduce my/our speed
- No - I/we was going above the speed limit but was not encouraged to reduce my/our speed
- Yes - I/we was going below the speed limit, and I/we reduced my/our speed further
- Yes - I/we was going above the speed limit and I/we reduced my/our speed

*Optional question (56 response(s), 30 skipped)
Question type: Radio Button Question*

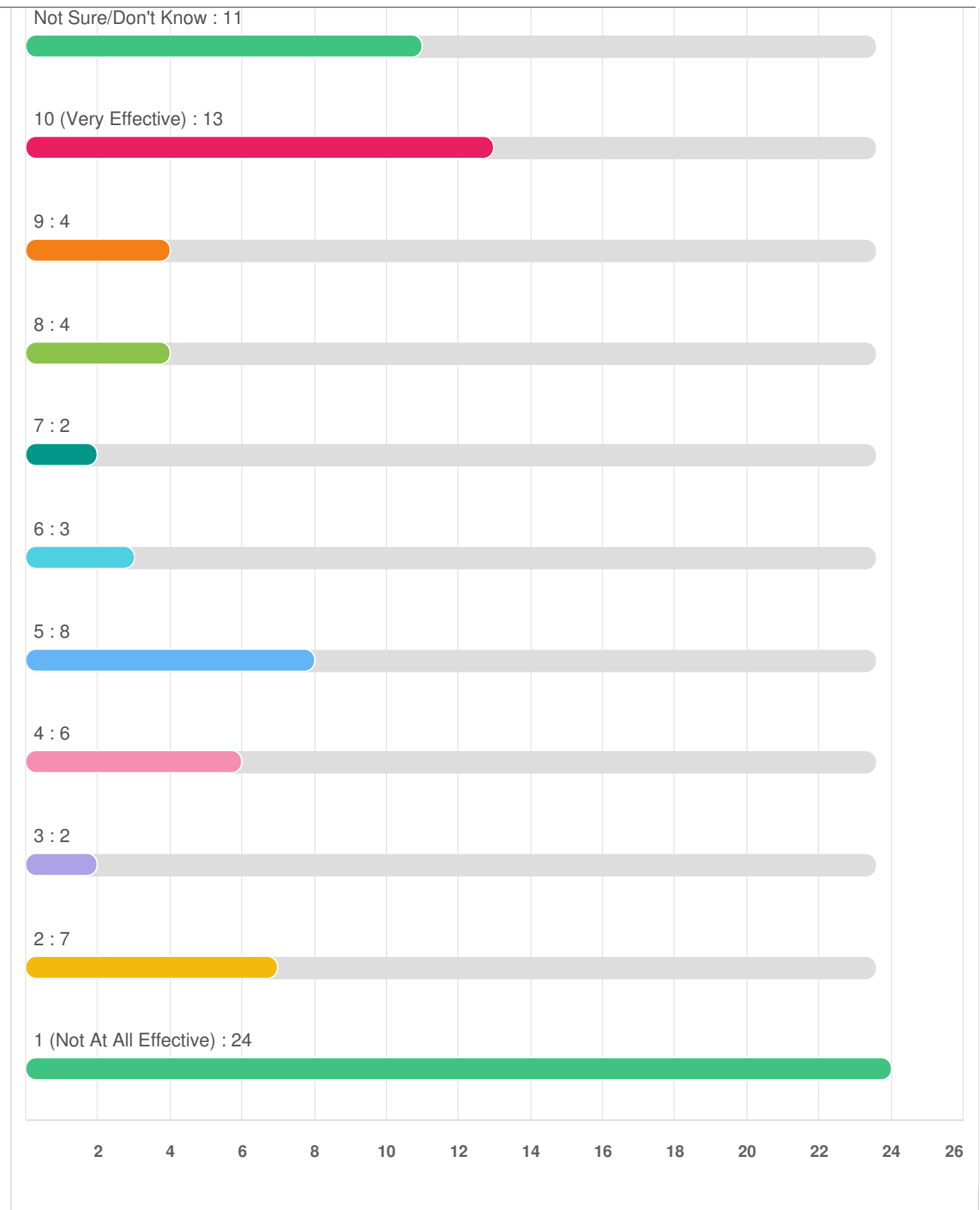
Q15 On a scale of 1 to 10, how effective do you feel the use of chicanes as a type of traffic calming measure would be at improving traffic safety, where 1 is not at all effective and 10 is very effective?



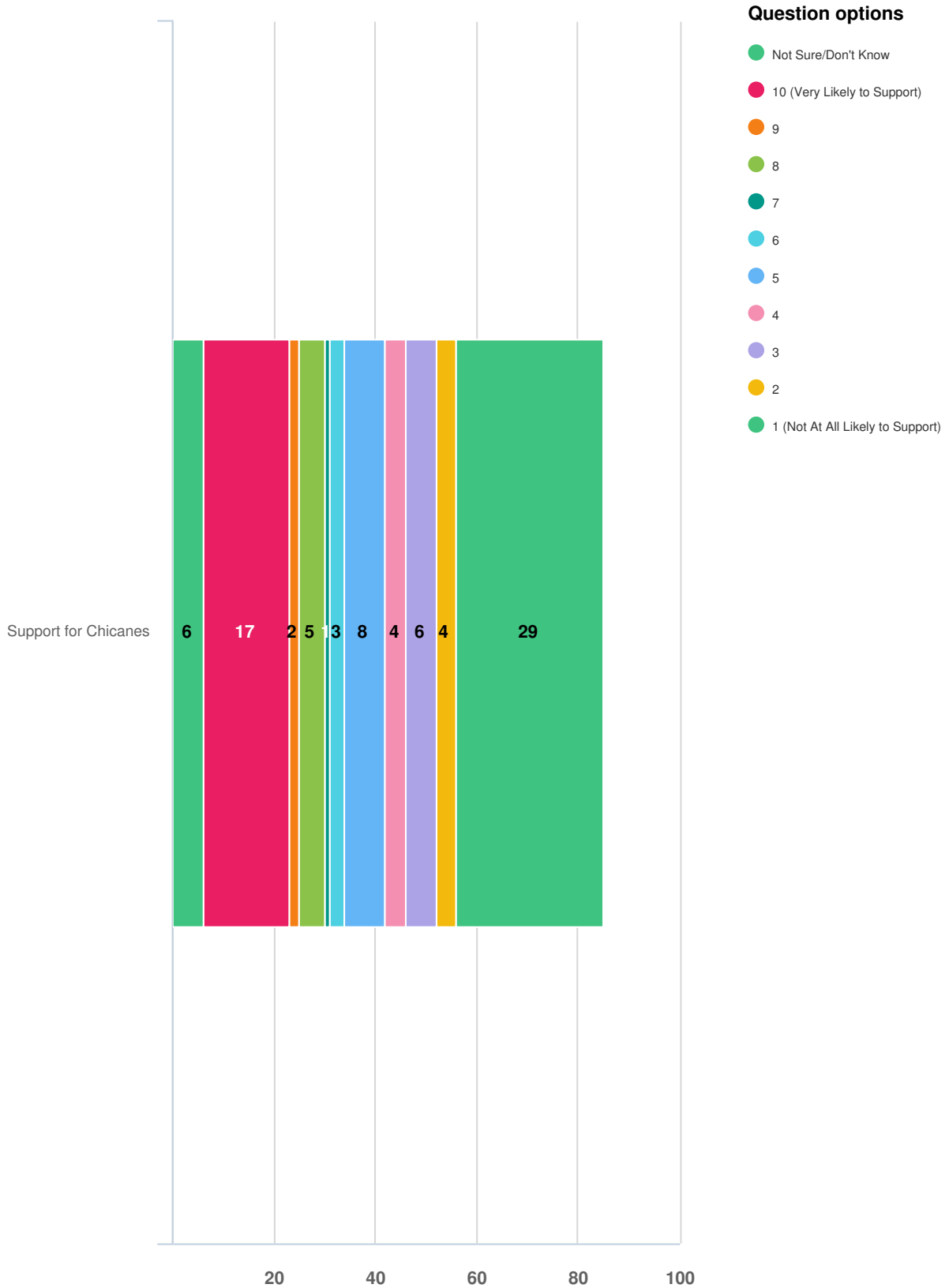
Optional question (84 response(s), 2 skipped)
 Question type: Likert Question

Q15 | On a scale of 1 to 10, how effective do you feel the use of chicanes as a type of traffic calming measure would be at improving traffic safety, where 1 is not at all effective and 10 is very effective?

Effectiveness of Chicanes



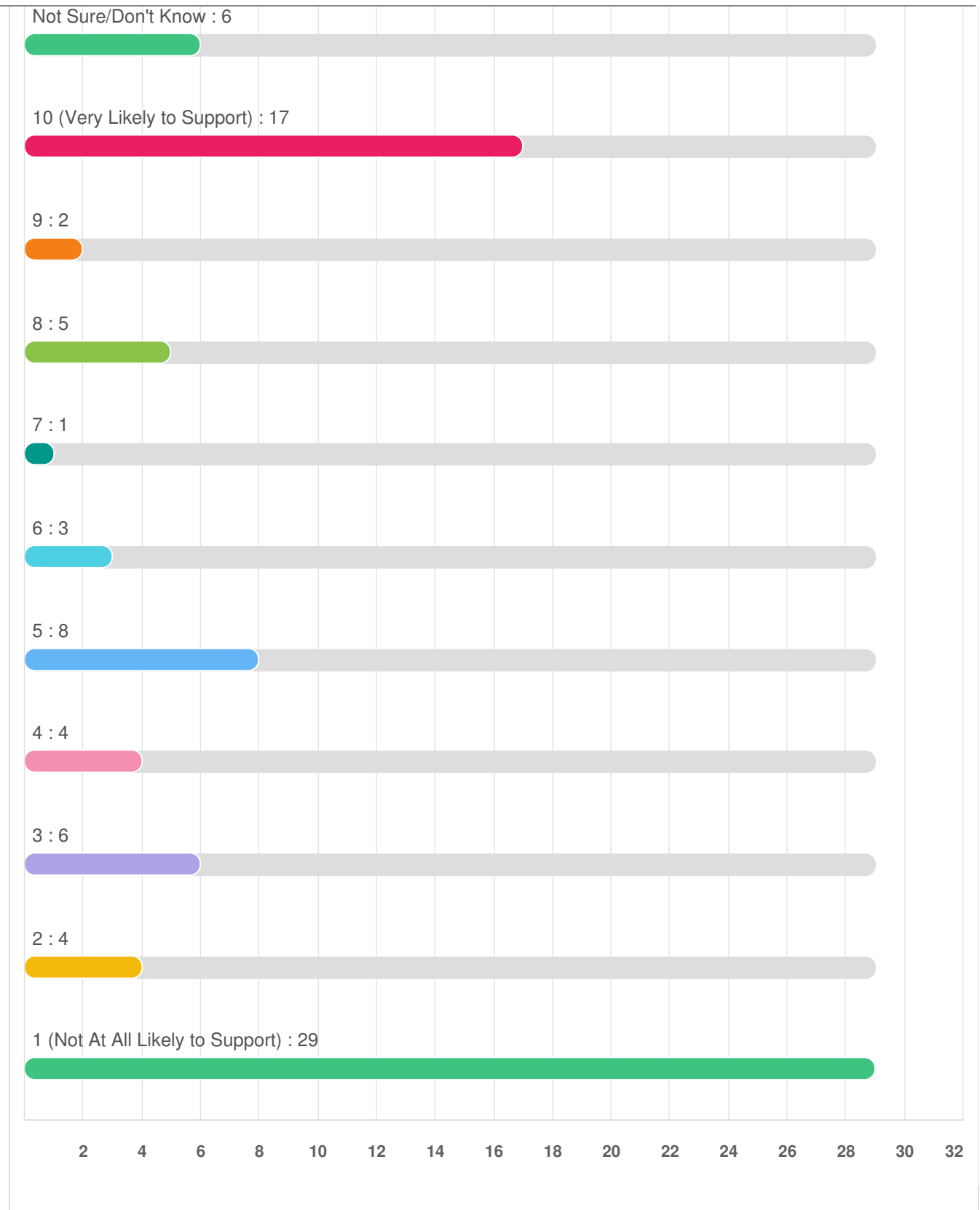
Q16 On a scale of 1 to 10, how likely are you to support such a traffic calming measure if it were to be included in your neighbourhood, where 1 is not at all likely and 10 is very likely?



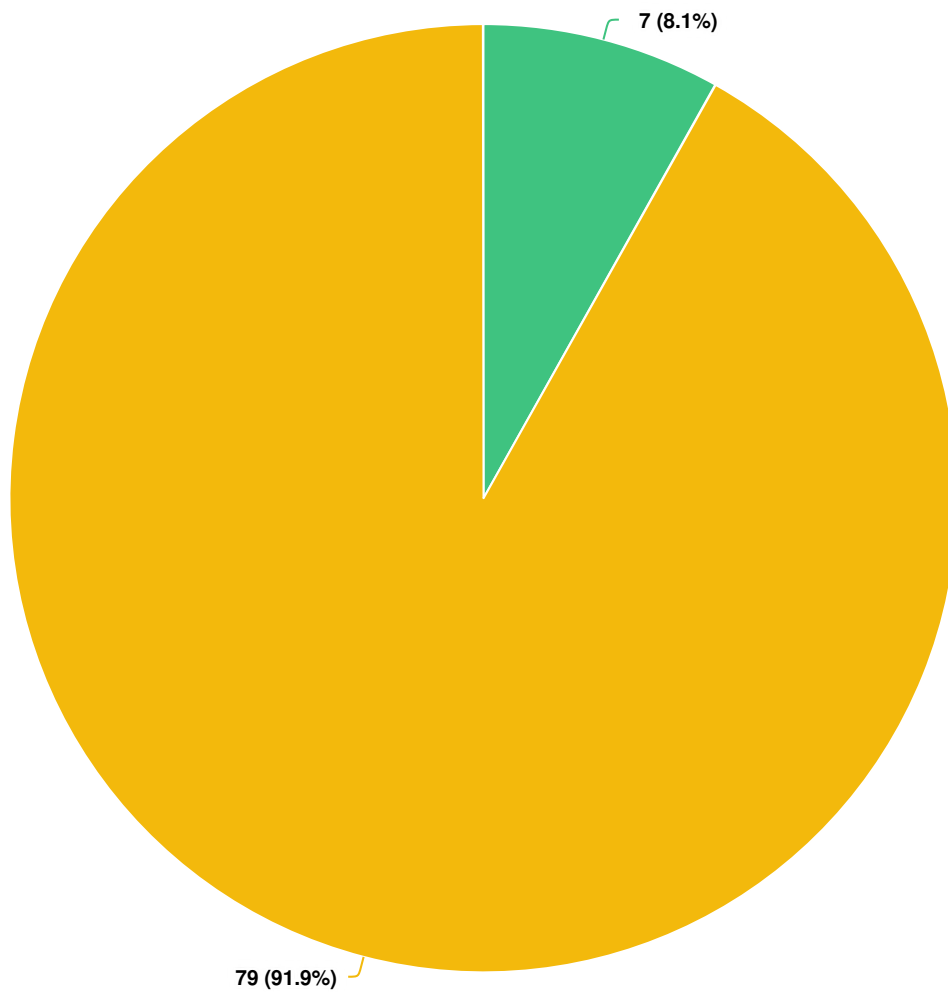
Optional question (85 response(s), 1 skipped)
 Question type: Likert Question

Q16 | On a scale of 1 to 10, how likely are you to support such a traffic calming measure if it were to be included in your neighbourhood, where 1 is not at all likely and 10 is very likely?

Support for Chicanos



Q17 | Do you live on Maple Road between Belle Aire Beach Road and Dudley Road?

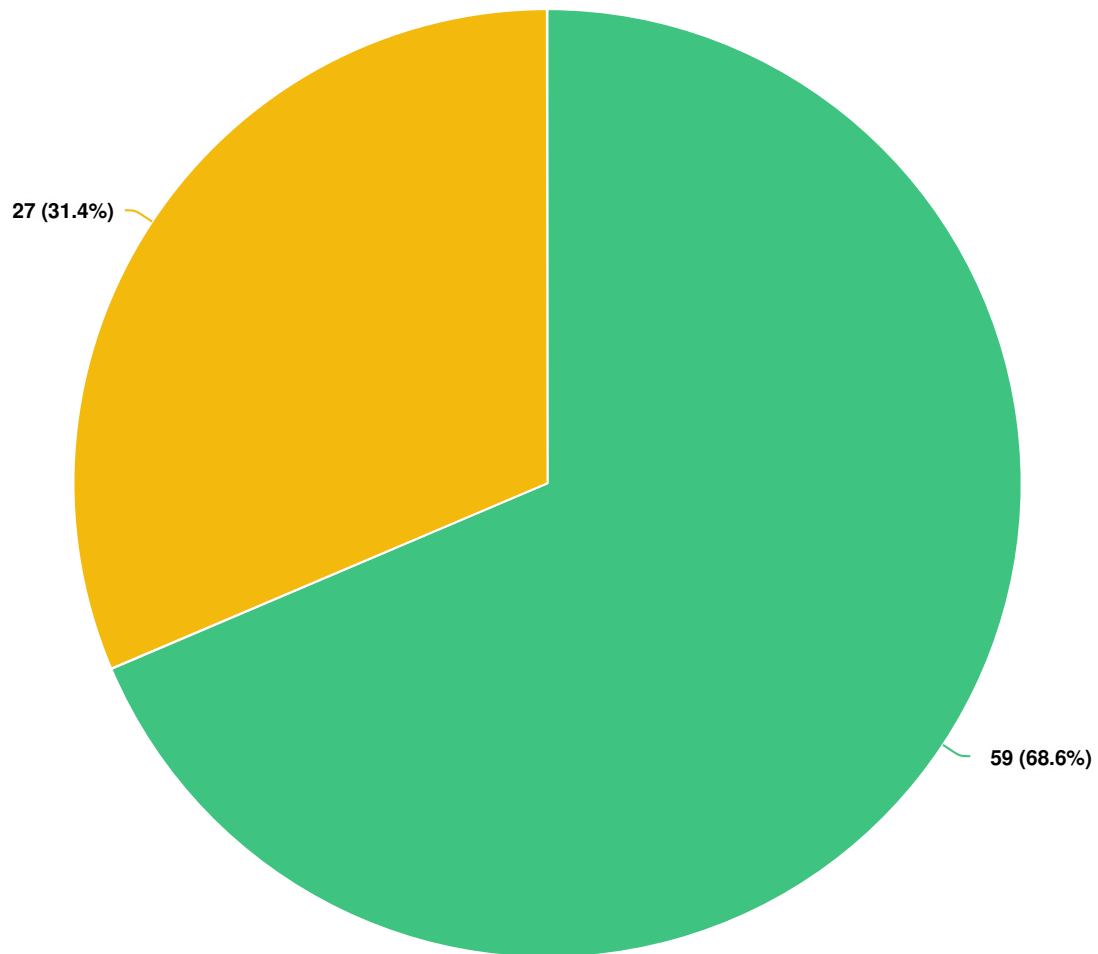


Question options

- No
- Yes

*Optional question (86 response(s), 0 skipped)
Question type: Radio Button Question*

Q18 Between August 26 and October 11, have you driven along this stretch of Maple Road or been a passenger in a vehicle doing so?

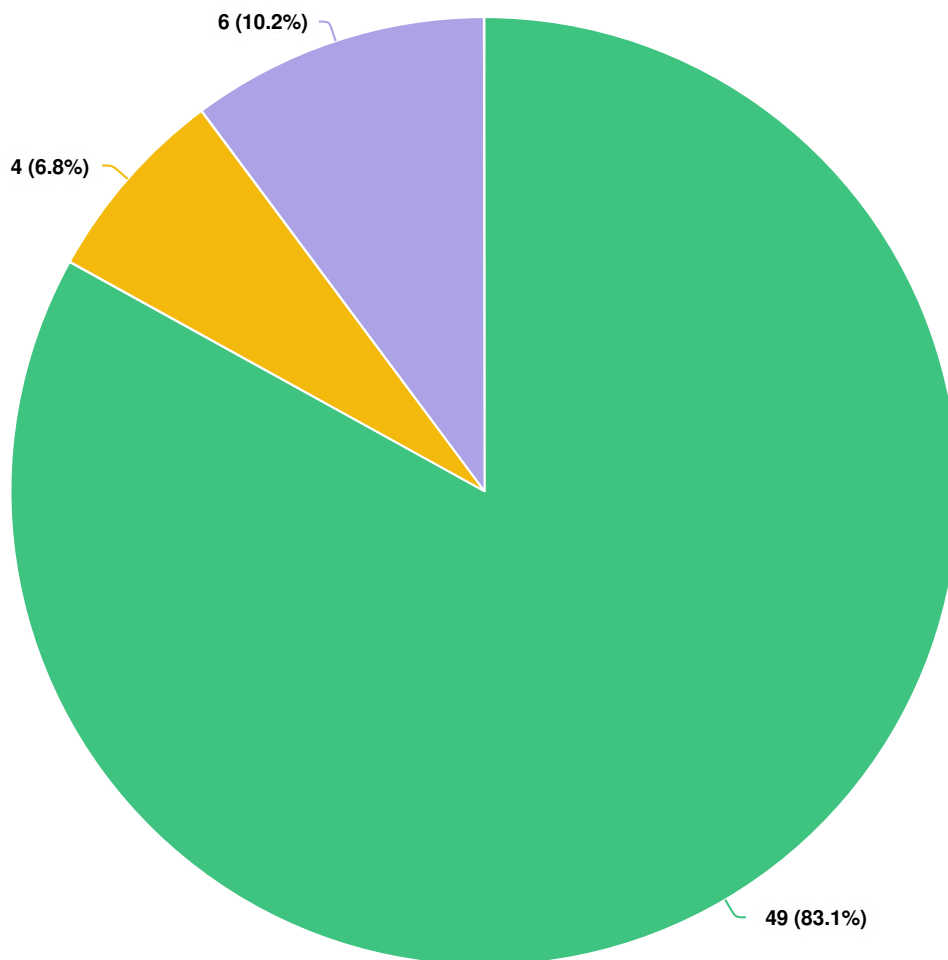


Question options

- No
- Yes

Optional question (86 response(s), 0 skipped)
Question type: Radio Button Question

Q19 In these instances, were you usually the driver or the passenger?

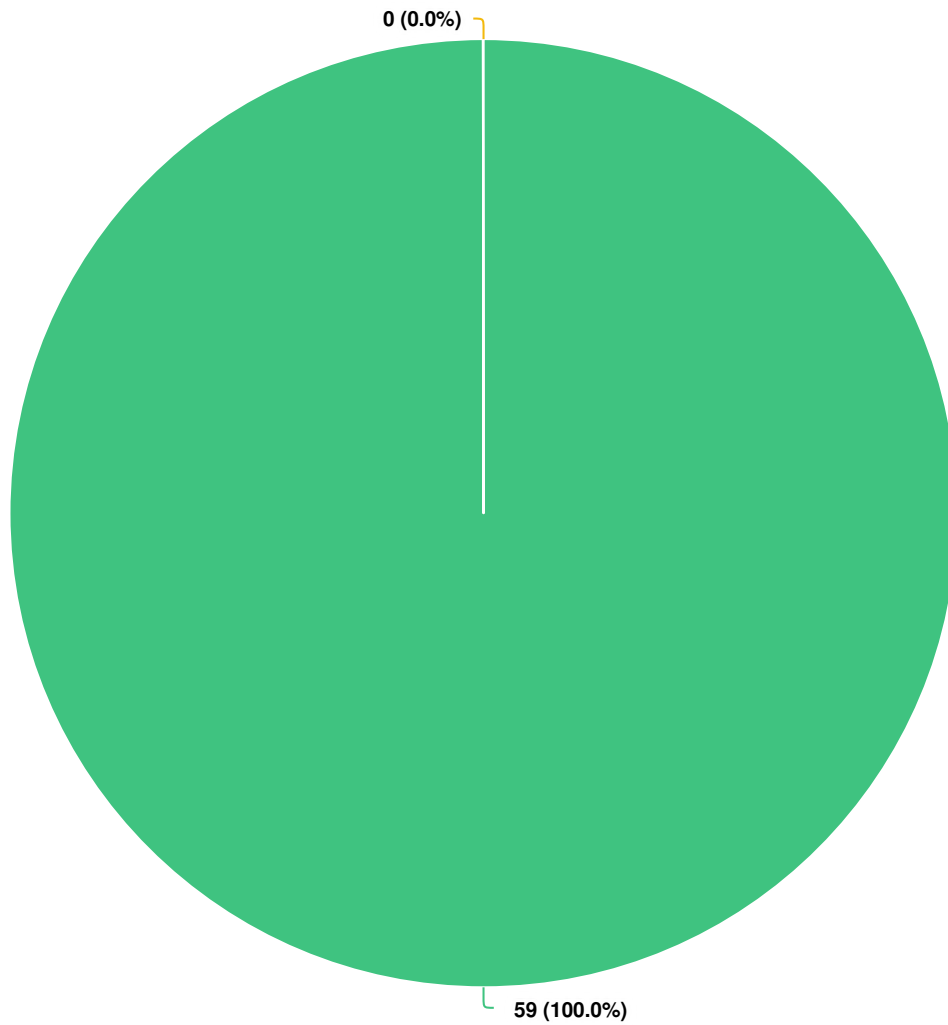


Question options

- Equally both
- Usually the passenger
- Usually the driver

Optional question (59 response(s), 27 skipped)
Question type: Radio Button Question

Q20 Did you notice the traffic calming measures in the pilot area?

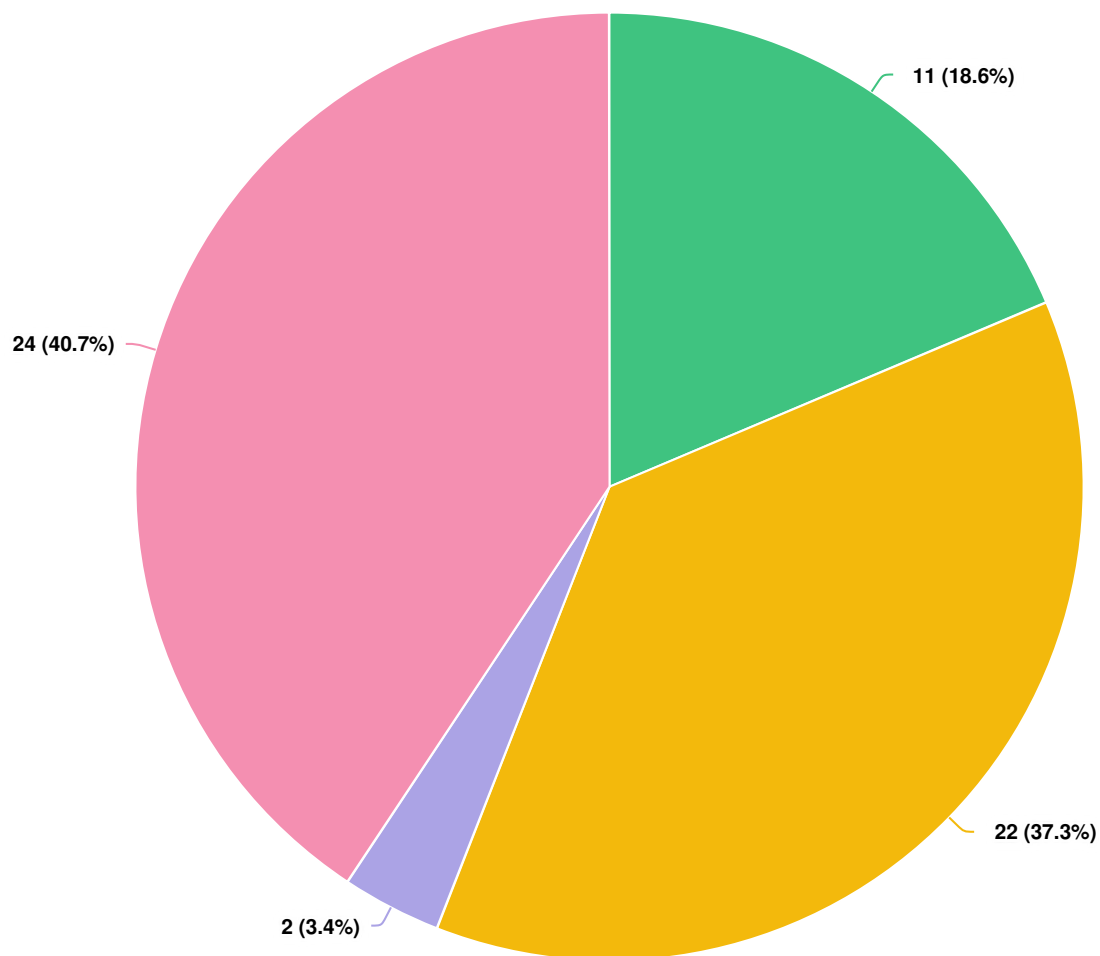


Question options

- No
- Yes

*Optional question (59 response(s), 27 skipped)
Question type: Radio Button Question*

Q21 In the vehicle you were in, did you feel that the measures encouraged you (or the driver, if you were a passenger) to reduce the vehicle's speed? Please select the answer that most applies.



Question options

- No - I/we was not speeding and did not need to reduce my/our speed
- No - I/we was going above the speed limit but was not encouraged to reduce my/our speed
- Yes - I/we was going below the speed limit, and I/we reduced my/our speed further
- Yes - I/we was going above the speed limit and I/we reduced my/our speed

Optional question (59 response(s), 27 skipped)
Question type: Radio Button Question

Q22 On a scale of 1 to 10, how effective do you feel the following types of traffic calming measures would be at improving traffic safety, where 1 is not at all effective and 10 is very effective?

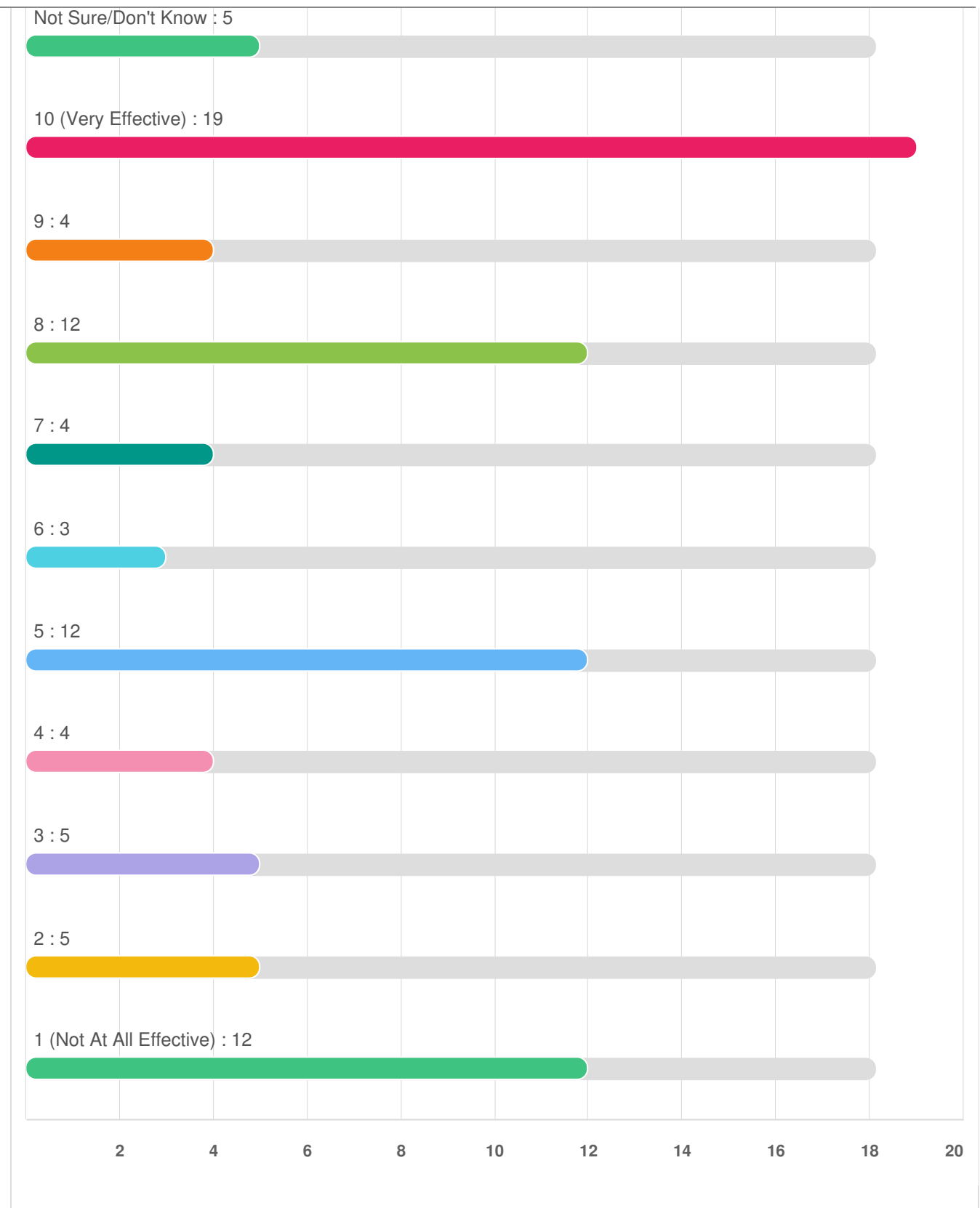


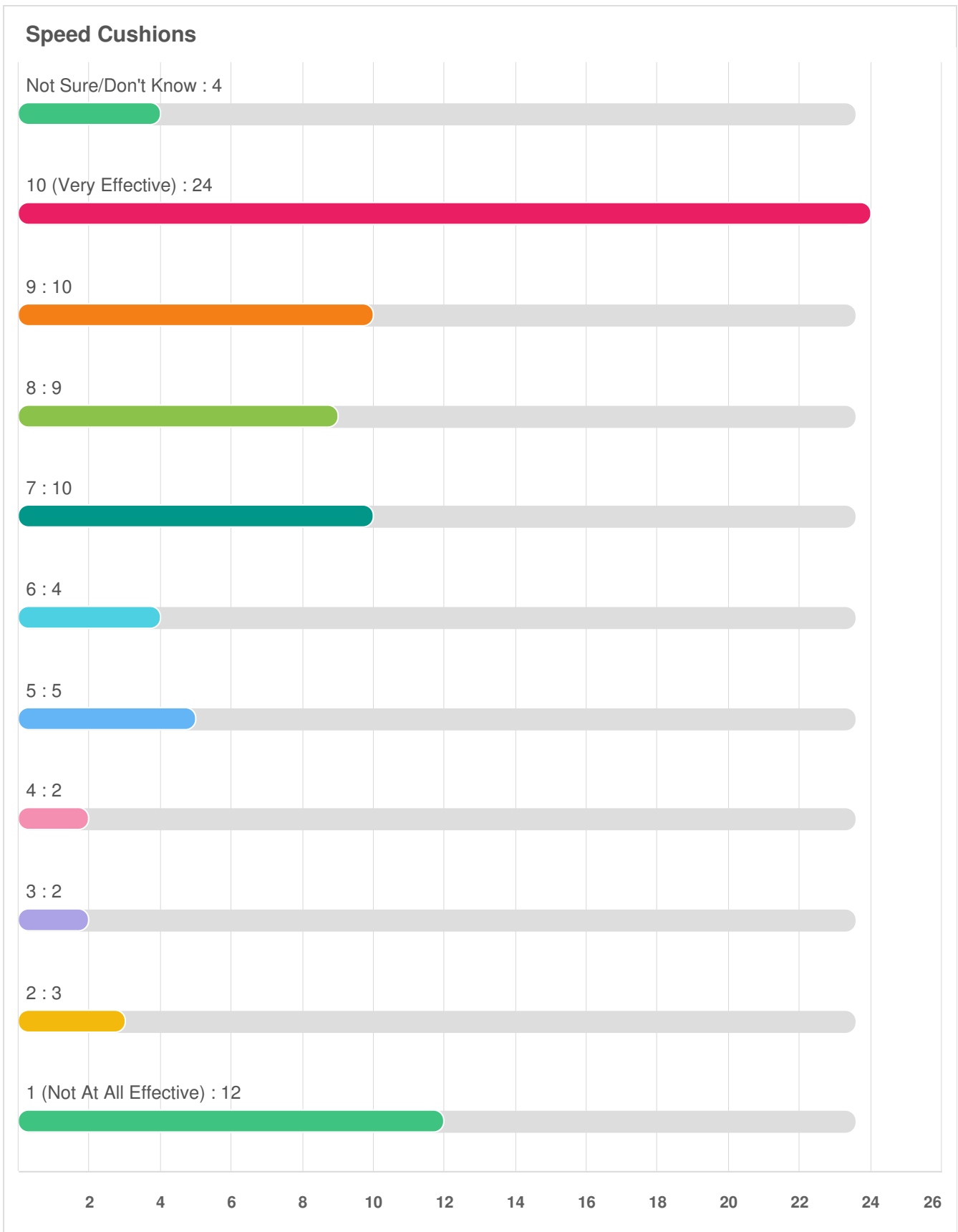
Optional question (85 response(s), 1 skipped)

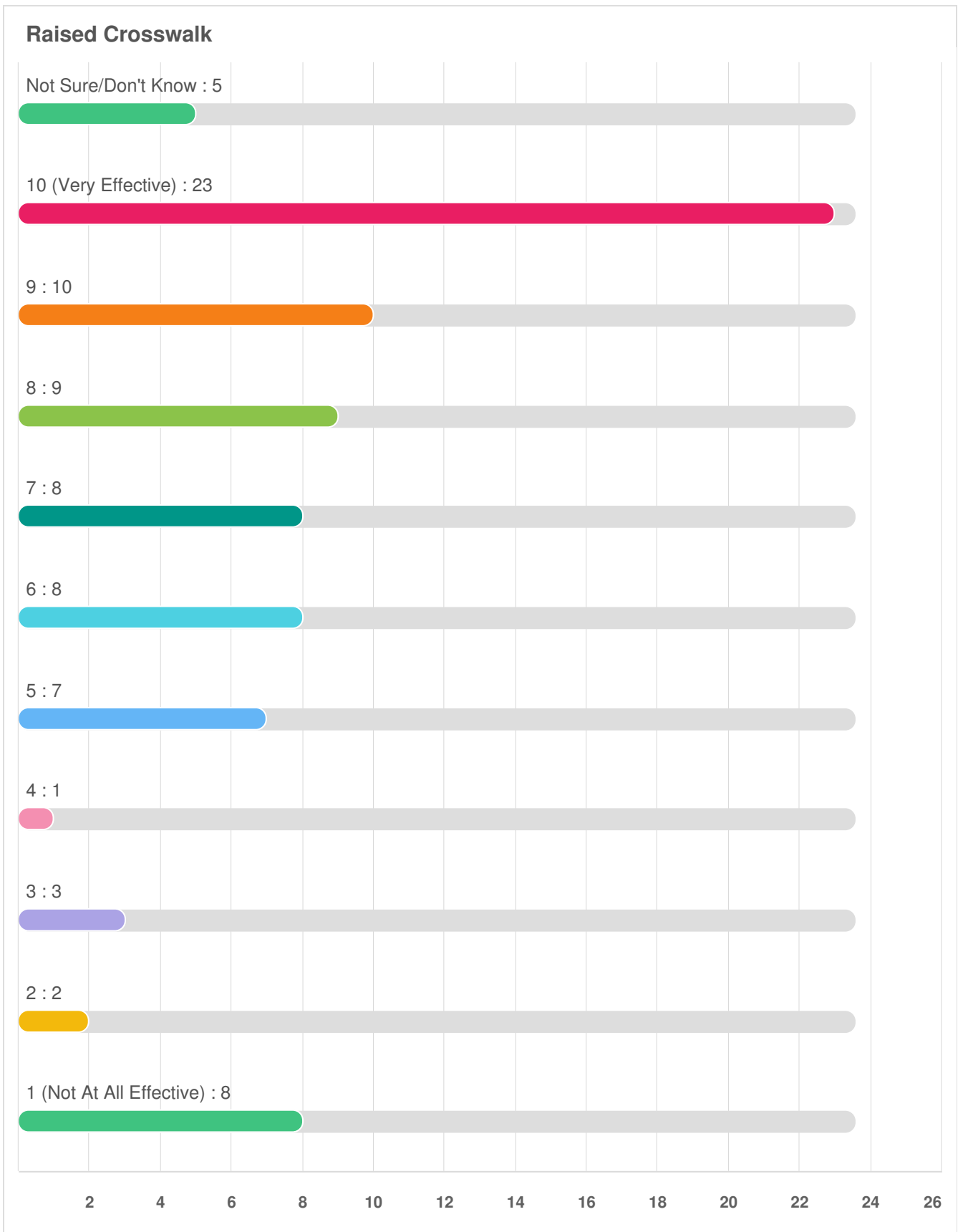
Question type: Likert Question

Q22 | On a scale of 1 to 10, how effective do you feel the following types of traffic calming measures would be at improving traffic safety, where 1 is not at all effective and 10 is very effective?

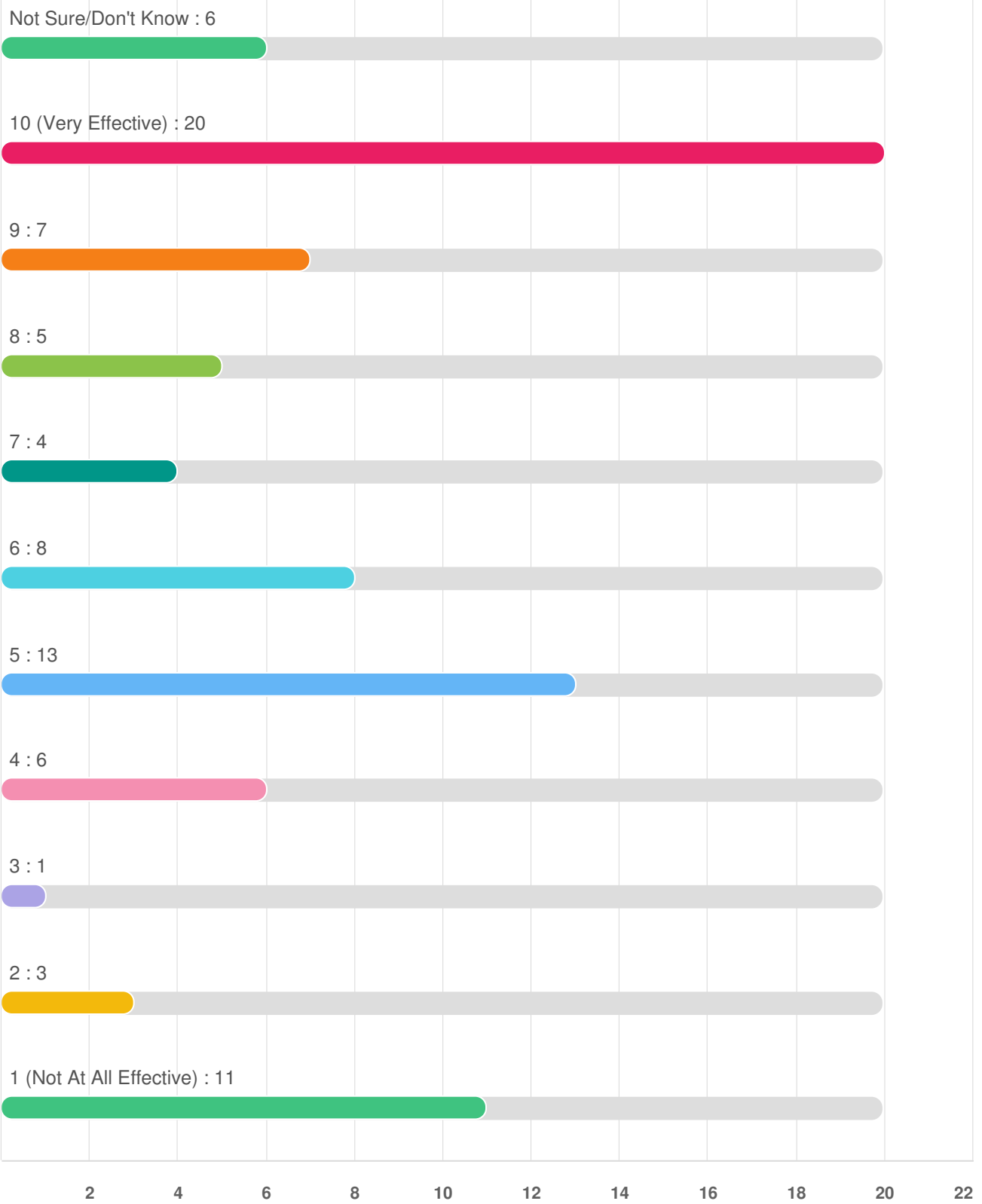
Lane Narrowing







Shared Bike/Pedestrian Lane with Flexible Delineator



Two or More Measures Used in Combination

Not Sure/Don't Know : 9



10 (Very Effective) : 27



9 : 4



8 : 8



7 : 7



6 : 7



5 : 5



4 : 0



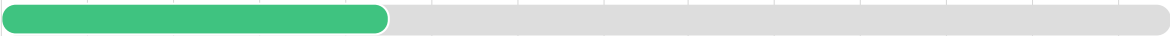
3 : 1



2 : 5



1 (Not At All Effective) : 9



2 4 6 8 10 12 14 16 18 20 22 24 26 28 30

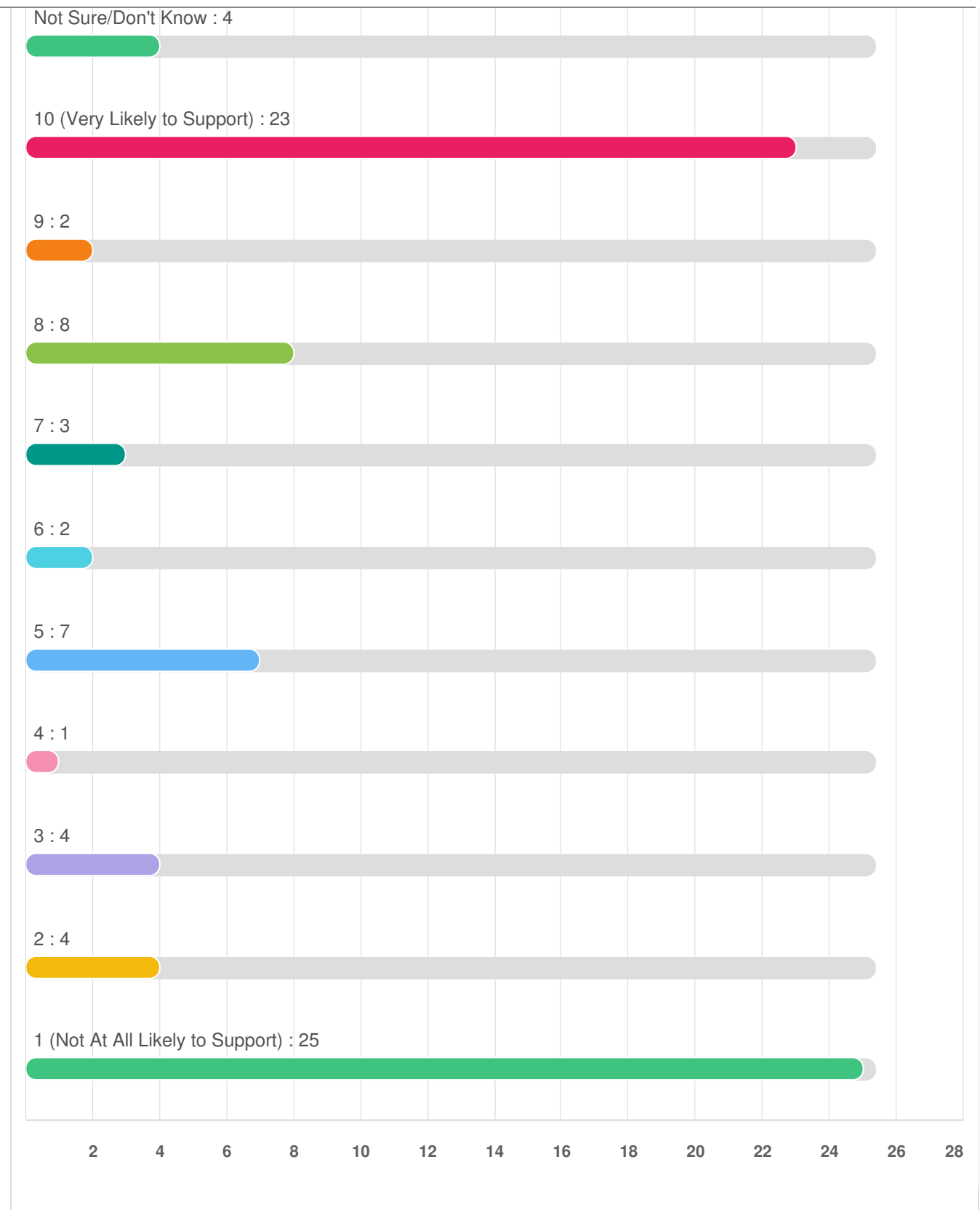
Q23 On a scale of 1 to 10, how likely are you to support such traffic calming measures if one or more were to be included in your neighbourhood, where 1 is not at all likely and 10 is very likely?



Optional question (84 response(s), 2 skipped)
Question type: Likert Question

Q23 | On a scale of 1 to 10, how likely are you to support such traffic calming measures if one or more were to be included in your neighbourhood, where 1 is not at all likely and 10 is very likely?

Lane Narrowing



Speed Cushions

Not Sure/Don't Know : 4



10 (Very Likely to Support) : 31



9 : 5



8 : 6



7 : 2



6 : 4



5 : 4



4 : 2



3 : 0



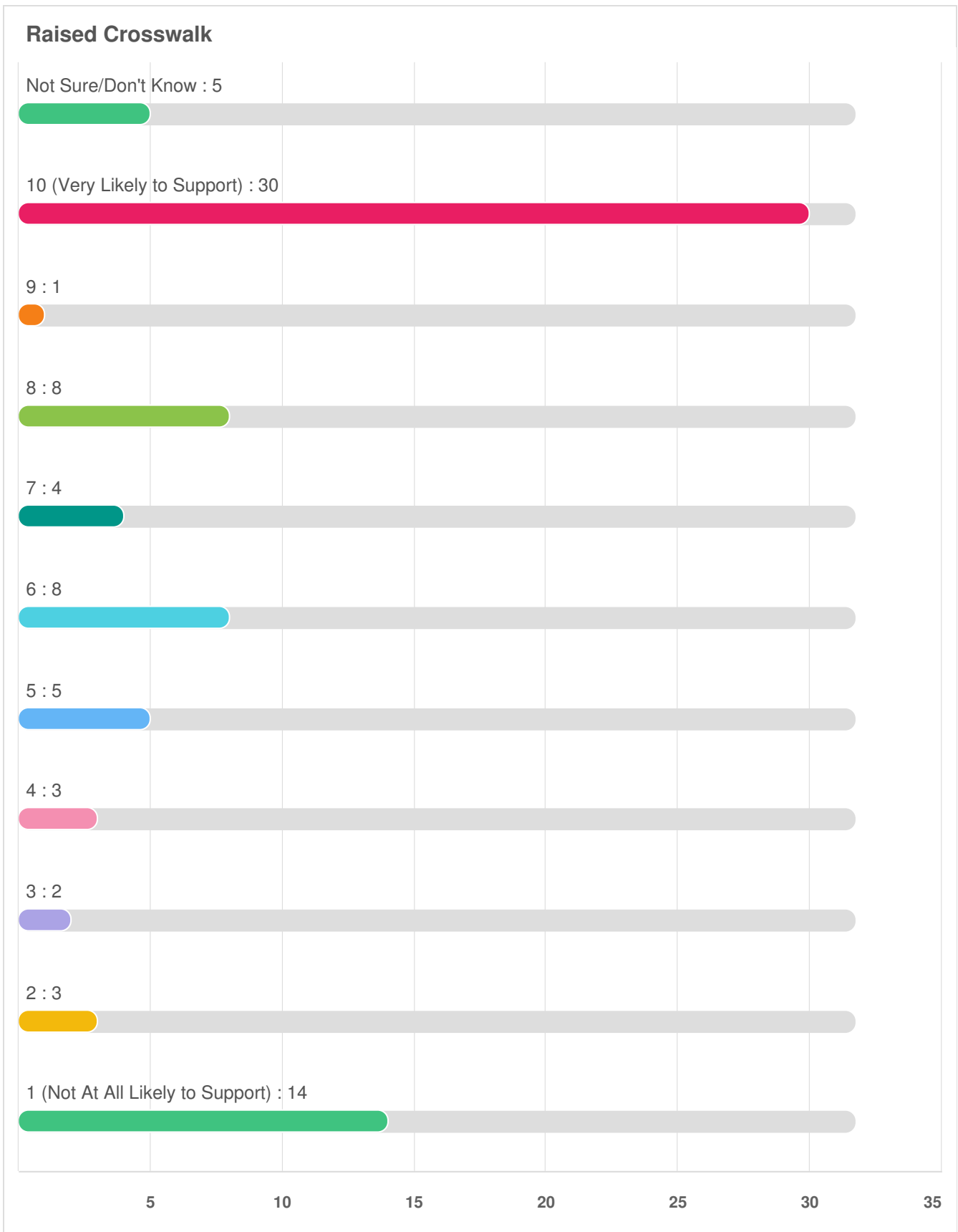
2 : 3



1 (Not At All Likely to Support) : 22



5 10 15 20 25 30 35



Shared Bike/Pedestrian Lane with Flexible Delineator

Not Sure/Don't Know : 4



10 (Very Likely to Support) : 26



9 : 2



8 : 6



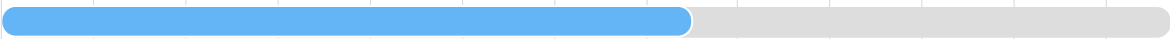
7 : 5



6 : 1



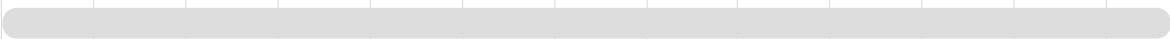
5 : 15



4 : 6



3 : 0



2 : 0



1 (Not At All Likely to Support) : 18



2 4 6 8 10 12 14 16 18 20 22 24 26 28

Two or More Measures Used in Combination

Not Sure/Don't Know : 8



10 (Very Likely to Support) : 31



9 : 1



8 : 6



7 : 4



6 : 6



5 : 3



4 : 2



3 : 0



2 : 5



1 (Not At All Likely to Support) : 16



5 10 15 20 25 30 35

Q24 Thank you for your participation in this survey. Before you leave, do you have any other thoughts you wish to share regarding Traffic Calming in Innisfil?

Screen Name Redacted

10/31/2022 01:49 PM

What happened to Cookstown where cars have rammed into the same building twice in the last few years? Maybe a speed bump with lights flashing.

Screen Name Redacted

10/31/2022 02:26 PM

I do believe more Innisfil residents would be interested in & give opinions if traffic calming tests were done in denser residential neighbourhoods with more traffic.

Screen Name Redacted

10/31/2022 02:47 PM

With the ability of municipalities to put in speed cameras, there should be a push for active enforcement in high danger areas, or areas where speeds drop from rural 80s to residential or town 50s. The stretch of 20th sideroad just south of Lefroy and North of Gilford is one such area where there should be speed cameras installed. I frequently find people riding my bumper when I slow to the posted speed in front of the elementary school there. Gilford Road and 20th sideroad frequently have T-bone / sideswipe collisions due to failures to stop at the stop sign on 20th sideroad and people who are failing to slow down for the 50 zone into Gilford. I have only lived in the area for a few years and I need TWO hands to count the number of serious collisions that I have personally seen at that intersection. A municipal speed camera put in place to force drivers to actually SLOW to 50 would likely reduce the severity of the accidents at that intersection. Since the stretch along Gilford road does not increase in speed again, you could put them almost anywhere along the entire stretch and have a net positive impact on road safety in the area. In fact, that kind of active enforcement of speed is likely the most effective tool in your arsenal to curb the speed of those people who just don't care.

Screen Name Redacted

10/31/2022 05:13 PM

The traffic safety and speed enforcement in this town is alarming poor. Any little thing that is done is an improvement over how our road safety is currently handled which is less than nothing.

Screen Name Redacted

11/01/2022 06:23 AM

The Belle Aire Community Beach benefitted very much from the installation of the temporary crosswalk at the Spooners and Maple intersection. As 2022 was the first experience for my wife and I of a summer in innisfil -- a place we have quickly come to love as our home -- we became aware of the beehive of activity at the nearby beach. It is a very active social and fun centre, a safe swimming and recreation area well taken care of by Association members, and enjoyed daily by many locals and visitors (many of who are very young children joined by parents lugging beach gear across the busy street). Since there is no direct beach parking, most everyone arrives

at the beach by foot. Thus, a significant negative is the lack of some sort of permanent crosswalk set-up. It's something the local beach folk, many of whom I've come to know, would love to see, not just in the summer but year-round for permanent residents: so, a safety benefit for all! ... I really appreciate what the Town of Innisfil and its project partners have already done with this Traffic Calming pilot; I look forward to the rest of the process, as decisions are made to, ideally, bring permanent traffic calming measures to Maple Road and other areas of Innisfil. Of course, I recognize budgets can come into play, but I feel confident that, based on what's been done to date, my ideal will transpire: permanent traffic calming in front of my new home!

Screen Name Redacted

11/01/2022 10:58 AM

Please add a sidewalk with proper spacing onto both sides of Shore Acres in Gilford. It is heavily used by so many locals and tourists. We deserve a proper sidewalk.

Screen Name Redacted

11/02/2022 09:14 PM

Appreciate the efforts.

Screen Name Redacted

11/04/2022 12:52 PM

Better happen soon as it has become ridiculous through Cookstown as well as the vehicle speed on highway 89.

Screen Name Redacted

11/04/2022 12:56 PM

Please do traffic calming on Ewart St between Maple Rd and Arnold St as there are multiple children and families that walk to and from the buss stop and FAR too many people speeding all the time.

Screen Name Redacted

11/04/2022 01:08 PM

Use the Police with radar enforcement if speeding is a problem

Screen Name Redacted

11/04/2022 01:17 PM

Do more in front of schools to protect children from speeding cars.

Screen Name Redacted

11/04/2022 01:36 PM

Arnold St in Belle Ewart could most definitely use some traffic calming measures. It's a straight race track for those cutting around Ewart to Belle Aire Beach. Should be limited to local traffic only.

Screen Name Redacted

11/04/2022 01:39 PM

Please slow down the drivers and keep our roads safe.

Screen Name Redacted

Your experiment was instituted at the wrong time of the year.WHY

11/04/2022 02:38 PM

WOULD YOU INSTALL THESE CALMING MEASURES WHEN THERE is NO ONE AROUND TO MEASURE. These areas are used by Seasonal Residents who go home after labour day. Your consultants should not be paid. This is typical of the Town of Innisfil. Smarten up!!!!!!!!!!~

Screen Name Redacted

11/04/2022 02:58 PM

Install on the 25th in school zone as people don't know what a red light means

Screen Name Redacted

11/04/2022 04:28 PM

Traffic calming, with the correct thought process, and intelligence, could prove to be beneficial. However, in this case, the timing was all wrong. To me, this appeared to become a waste of money, for a make work project!

Screen Name Redacted

11/04/2022 06:49 PM

Traffic calming irritates drivers. Maybe have more cops ticketing for speeding?

Screen Name Redacted

11/05/2022 08:41 AM

Please look into 25th sideroad and 10th line area. It is scary as a parent of young kids. Nothing to slow people down at 10th. Need 4way stop sign in my opinion

Screen Name Redacted

11/05/2022 10:44 AM

Please put more stop signs and full speed bumps in areas people drive to fast. Or speed cameras and bring in revenue to cover the cost of adding real speed bumps and stop signs. Webster Speedway is the worst. Lots of children and lots of speeders!

Screen Name Redacted

11/05/2022 10:54 AM

Please consider doing something on Helen St and Adams Rd. The speed limit should at least be reduced to 40 from 50. We have many cars that use Helen as an entry/exit point that don't even live in the area. Many speed or drive carelessly. Speed is also an issue on Adams/Lakelands. We have many children playing and pedestrians using this roadway. PLEASE REDUCE THE SPEED LIMIT and/or consider doing the same on these streets. Thank you

Screen Name Redacted

11/05/2022 02:11 PM

Main concern in my area are ATV's and dirt bikes speeding and trespassing. They should only be permitted during the ice fishing season. This would improve quality of life for all residents in the Town.

Screen Name Redacted

11/05/2022 02:37 PM

The best and cheapest calming efforts I have experienced are on Charleston Sideroad at the fire hall and school. A two lane road with

a centre slim "slow" sign and reflective standards on each side. Tight enough, that everyone slows right down. Physical barriers are the best. Including speed bumps. Real bumps that teach a lesson.

Screen Name Redacted

11/05/2022 08:01 PM

St Johns Road from the 7th line to Westmount is a speed track! Traffic calming measures between Anna Maria and Garden would help slow people down! May more police presence would help.

Screen Name Redacted

11/05/2022 09:28 PM

Signs that display vehicle speed with enhanced flashing lights are a great reminder to the driver that he is crossing the speed limit. Is it possible to have a photo taken of the vehicle with clear licence plate and post them social media shaming wall.... no names, just the vehicles and license plates? Just a thought.

Screen Name Redacted

11/06/2022 06:02 AM

In Alcoa, specifically on Webster Blvd., and Forest St., these calming measures will most likely result in motorists' attempting to circumvent them, and also-I don't feel that these specific roadways could accommodate the space needed to install them. A Police presence on the aforementioned roadways would be of much greater value in preventing speeders from continuing their bad habits. Perhaps the electronic speed calculators would be more appropriate!

Screen Name Redacted

11/06/2022 07:03 AM

It seems that more often than not, the traffic calming measures are used in areas that they are not well suited for. For example, bike lanes would be a great idea on 20th sideroad, but are not really a necessary expense through most neighborhoods. Most drivers are respectful of the areas they are driving in and in many cases, implementation of traffic calming ends up causing confusion and frustration.

Screen Name Redacted

11/06/2022 09:29 AM

Now that the park has been installed on Trinity St, speed bumps should be installed. People fly down the road while kids are running around at the park all the time. Both my husband and I have witnessed people coming out of the walkway and vehicles flying by, almost hitting a woman with a stroller. The people that drive on our street completely ignore the speed limit.

Screen Name Redacted

11/06/2022 03:38 PM

My husband and I are in favour of traffic calming measures especially on Maple Rd.

Screen Name Redacted

We need more aggressive measures taken on Shore Acres Drive

11/07/2022 05:34 AM

Screen Name Redacted

11/07/2022 10:32 AM

The traffic calming measures used on Maple Road were excessive and distracting. Rumble strips grooved into the road surface might be a more appropriate measure to remind ppl to slow down in affected areas.

Screen Name Redacted

11/07/2022 11:26 AM

Please add speed bumps and lower speed limit labels. Also, add a stop sign at St. John and Maple Road. Maple is not a major road and traffic has increased tremendously. Its loud and unsafe.

Screen Name Redacted

11/07/2022 03:02 PM

Please do something about St. John's rd!!!

Screen Name Redacted

11/08/2022 07:37 AM

I understand that you need to do something to address the complaints by your constituents. However, I don't think that 'traffic calming' will change the behaviours of those drivers that continue to speed. The only way this will stop them is if they are hit in the pocketbook. Some may change after the first ticket, others may need a few more before they change their behaviour. Rather than spending money on traffic calming, consider making money by installing Municipal speed cameras. Maybe, just having the sign "Municipal Speed Camera In Use" on the sides of the road without actually installing the cameras would do what residents want, to slow the drivers down. A few signs are probably cheaper than the current cost of Traffic Calming, the signs will also not be impacted by snow on the ground or at night time so they will be seen.

Screen Name Redacted

11/08/2022 07:44 AM

Please do not burden the taxpayer with this expensive venture that does very little to address the actual traffic issues we are experiencing in these areas. Use the money on enforcement and ticket/charge offenders regularly.

Screen Name Redacted

11/08/2022 10:25 AM

Please add some traffic calming measures in Stroud. Specifically on major routes and the Lynn/ Dempster bypass people take through residential neighborhood to get from Yonge to McKay faster.

Screen Name Redacted

11/08/2022 02:37 PM

Shore Acres Drive desperately needs something that works to slow drivers down. Speed bumps and stops signs are the only things that will have an effect.

Screen Name Redacted

11/09/2022 07:09 AM

On belle aire beach road needs to start from 20th side road all the way down speed cushions. From 20th to the train track high speeds to 100km/h. My house is facing that road, see it every day especially summer time.

Screen Name Redacted

11/09/2022 12:37 PM

Innisfil need more safe bike lanes, not just a line on the road or bicycle marking which doesn't protect cyclists providing safe bike lanes will reduce traffic emissions and enhance health and equality

Screen Name Redacted

11/11/2022 05:14 AM

Please implement speed cushions (speed bumps) on Trinity Street in Alcona adjacent to Trinity Park.

Screen Name Redacted

11/12/2022 05:46 PM

The town needs to move on this much quicker. With the population increasing as rapidly as it is pedestrian safety is an absolute must!

Screen Name Redacted

11/15/2022 02:15 AM

Some of these measures negatively impact emergency vehicles

Screen Name Redacted

11/15/2022 12:57 PM

Traffic and the number of vehicles speeding increase during the summer months. Having police do radar once in a while during those months may be helpful.

Screen Name Redacted

11/16/2022 02:05 AM

I did not find they helped with my driving in these areas.

Screen Name Redacted

11/16/2022 04:16 AM

Thanks for this initiative, much appreciated!

Screen Name Redacted

11/16/2022 08:22 AM

Living in this area seeing the dangerous driving daily, I was grateful to see such fast action to put something in place during the busier summer months.

Screen Name Redacted

11/16/2022 03:24 PM

More police presence monitoring speed limits would be just as effective

Screen Name Redacted

11/16/2022 03:52 PM

Before town council decides on extreme measures like these, using valuable taxpayer money, they should maybe ask in a survey BEFORE wasting money like that. My question is, as a non-speeder, will the town be liable for damage to my car due to the narrowing and the speed bumps that are not even wide enough for my car to pass

over? I would like a response from someone. My contact details are Jane Neppen (905)806-3729

Screen Name Redacted

11/16/2022 04:34 PM

Please bring back photo radar

Screen Name Redacted

11/16/2022 06:50 PM

Yes I'm on St John's and the shared walkway for bikes and pedestrians is awful

Screen Name Redacted

11/17/2022 06:30 AM

Many communities use moveable speed bumps, I'm not sure why we can't use these on Shore acres. As soon as people go across the train tracks, they have a straight away and by the time they go past our home they are over 80 km. An animals or a child will be hurt if something is not done soon. I realize that police are stretched, but even having an empty car at the golf course occasionally makes people slow down.

Screen Name Redacted

11/17/2022 07:01 AM

Do what Bradford and other places did, add stop signs to intersections. Maybe lower the speed limit. Provide residents with actual data from the study done on this so they know what they are supporting.

Screen Name Redacted

11/17/2022 10:15 AM

Fix the flooding issues before you decide to waste time and money on something that doesnt need to be fixed.

Screen Name Redacted

11/18/2022 08:57 AM

Please implement more of the measures we saw on Maple road such as physical barriers for separation between vehicles and pedestrians. They were a great way to improve safety

Screen Name Redacted

11/20/2022 02:35 PM

Roads east of 20th side road should all be less than 80Km zones. Hard to keep speed down in a commuter town when folks are trying to get home to get on with their lives.

Screen Name Redacted

11/21/2022 04:52 AM

Urging speed bumps around residential areas in Innisfill to calm vehicles of all types . Everyone speeds . I don't ride my bike in fear of getting hit

Screen Name Redacted

11/21/2022 07:56 AM

Please continue to have resident input and or continue to have a SZTAC committee for involvement. We need to educate our children more on this. Have developers involved in making safer roads within

their developments in working with our town.

Screen Name Redacted

11/21/2022 01:31 PM


Instead of waste taxpayers money on ineffective remedial solutions, install speed humps and the problems with cease. In addition, install them from 20th Side Road to Maple Road on Belle Aire Beach Road. 80% of the vehicles speed and 50% are excessive, like over 100km/h. I can attest to this as I tried to follow an ATV that was driving over 100km/h from 20th all the way down to Maple Road, made a left and continued north on Maple Road at these outrageous speeds. Help!!! This is unsafe on all accounts. Someone is going to get hurt.


Optional question (57 response(s), 29 skipped)


Question type: Essay Question


Appendix F:


Final Locations Characteristics and Chosen Measures


Location	Innisfil Beach Road
Road Segment	From 20 th Sideroad to Webster Boulevard
AADT	11780
85th Speed (km/h)	66
95th Speed (km/h)	70
Surface Width (m)	10.3
ROW Width (m)	20.1
Shoulder / Sidewalk	Raised median, cyclist lane denoted by pavement marking on both sides of the road, sidewalks on both sides.
Posted Speed Limit (km/h)	50
Segment Length (km)	0.606
Street Imagery	
Potential Solutions	Speed Display Board Flexible delineators


Location	Victoria Street
Road Segment	Yonge Street to North Gate Street
AADT	3132
85th Speed (km/h)	61
95th Speed (km/h)	65
Surface Width (m)	8
ROW Width (m)	20.1
Shoulder / Sidewalk	Sidewalk on the north side
Posted Speed Limit (km/h)	50
Segment Length (km)	0.476
Street Imagery	
Potential Solutions	<p>Double Widened Centreline (0.5m apart) and edge lines Centreline Flexible Delineator</p>


Location	Innisfil Beach Road
Road Segment	Jans Boulevard to Adullam Avenue
AADT	5992
85th Speed (km/h)	64
95th Speed (km/h)	69
Surface Width (m)	10
ROW Width (m)	20.1
Shoulder / Sidewalk	Raised median near intersection approaches, cyclist lane denoted by pavement marking on both sides of the road, sidewalks on both sides
Posted Speed Limit (km/h)	50
Segment Length (km)	0.515
Street Imagery	
Potential Solutions	<p style="text-align: center;">Widen Bike Lane Flexible Delineators separating the bike lane from the traffic lane</p>


Location	25 th Sideroad
Road Segment	Carniola Drive to 10 th Line
AADT	4072
85th Speed (km/h)	67
95th Speed (km/h)	71
Surface Width (m)	8.9 (Note: subject to change, the road is scheduled for rehabilitation)
ROW Width (m)	20.1
Shoulder / Sidewalk	Gravel shoulder
Posted Speed Limit (km/h)	50
Segment Length (km)	0.424
Street Imagery	
Potential Solutions	<p style="text-align: center;">Centreline Flexible Bollards Raised medians in T-intersection approaches</p>


Location	25 th Sideroad
Road Segment	Joseph Street to Willow Avenue
AADT	5098
85th Speed (km/h)	62
95th Speed (km/h)	68
Surface Width (m)	9.8 (Note: subject to change, the road is scheduled for rehabilitation)
ROW Width (m)	20.1
Shoulder / Sidewalk	Gravel shoulder, sidewalk on the east side
Posted Speed Limit (km/h)	50
Segment Length (km)	0.323
Street Imagery	
Potential Solutions	<p style="text-align: center;">Centreline Flexible Bollards Raised medians in T-intersection approaches</p>


Location	7 th Line
Road Segment	Webster Boulevard to Quarry Drive
AADT	3642
85th Speed (km/h)	78
95th Speed (km/h)	86
Surface Width (m)	10 (Note: subject to change, the road is scheduled for rehabilitation)
ROW Width (m)	20.1
Shoulder / Sidewalk	Asphalt shoulder
Posted Speed Limit (km/h)	50
Segment Length (km)	0.905
Street Imagery	
Potential Solutions	<p style="text-align: center;"> Full-lane Transverse Bars Double Widened Centreline (0.5m apart) Centreline Flexible Bollards </p>


Location	Ewart Street
Road Segment	Arnold Street to Chapman Street
AADT	1821
85th Speed (km/h)	78
95th Speed (km/h)	86
Surface Width (m)	9.8
ROW Width (m)	20.1
Shoulder / Sidewalk	Asphalt shoulder
Posted Speed Limit (km/h)	50
Segment Length (km)	0.362
Street Imagery	
Potential Solutions	<p style="text-align: center;"> Speed Cushions Double Widened Centreline (0.5m apart) Centreline Flexible Bollards Flexible Delineators </p>


Location	King Street North
Road Segment	Garibaldi Street to 250m North of Garibaldi Street
AADT	4734
85th Speed (km/h)	61
95th Speed (km/h)	68
Surface Width (m)	14
ROW Width (m)	20.1
Shoulder / Sidewalk	Sidewalk on the west side
Posted Speed Limit (km/h)	40
Segment Length (km)	0.197
Street Imagery	
Potential Solutions	<p>Speed Enforcement Cameras to issue warning tickets</p> <p>On-street Parking Lane Painting</p> <p>Bulb Out using Flexible Delineators</p>


Location	Saint John's Road
Road Segment	Kennedy Road to Nantyr Drive
AADT	2914
85th Speed (km/h)	66
95th Speed (km/h)	71
Surface Width (m)	9.8
ROW Width (m)	20.1
Shoulder / Sidewalk	Gravel shoulder, shared pedestrian/cyclist lane denoted by pavement marking on the north side of the road
Posted Speed Limit (km/h)	50
Segment Length (km)	0.390
Street Imagery	
Potential Solutions	Pedestrian Crossover (PXO) + Raised Crosswalk Speed Cushions


Location	10 th Line
Road Segment	25 th Sideroad to Christie Street
AADT	2309
85th Speed (km/h)	61
95th Speed (km/h)	68
Surface Width (m)	10.4
ROW Width (m)	20.1
Shoulder / Sidewalk	Gravel shoulder
Posted Speed Limit (km/h)	50
Segment Length (km)	0.413
Street Imagery	
Potential Solutions	<p>Double Widened Centreline (0.5m apart) Centreline Flexible Bollards Speed Cushions</p>

Location	25 th Sideroad
Road Segment	31m South of Rose Lane to Candaras Street
AADT	3642
85th Speed (km/h)	65
95th Speed (km/h)	70
Surface Width (m)	9.8
ROW Width (m)	20.1
Shoulder / Sidewalk	Gravel shoulder, sidewalk on the east side of the road
Posted Speed Limit (km/h)	50
Segment Length (km)	0.242
Street Imagery	
Potential Solutions	<p style="text-align: center;">Speed Display Boards On-Road Messages Pavement Markings</p>

Location	Belle Aire Beach Road
Road Segment	Reid Street to Temple Avenue
AADT	1093
85th Speed (km/h)	62
95th Speed (km/h)	69
Surface Width (m)	8
ROW Width (m)	20.1
Shoulder / Sidewalk	Gravel shoulder, shared pedestrian/cyclist lane denoted by pavement marking on the north side of the road
Posted Speed Limit (km/h)	50
Segment Length (km)	0.261
Street Imagery	
Potential Solutions	<p style="text-align: center;">Island and gateway Double Widened Centreline (0.5m apart) Centreline Flexible Delineator</p>

Location	King Street South
Road Segment	Victoria Street East to Riley Street
AADT	4006
85th Speed (km/h)	68
95th Speed (km/h)	74
Surface Width (m)	14
ROW Width (m)	20.1
Shoulder / Sidewalk	Wide asphalt shoulder, sidewalk on the west side of the road
Posted Speed Limit (km/h)	40
Segment Length (km)	0.399
Street Imagery	
Potential Solutions	<p>Pedestrian Crossover (PXO) + Textured Crosswalk + Bulb-out Centreline Flexible Bollards</p>

Location	Maple Road
Road Segment	Button Place to Maple Way
AADT	1457
85th Speed (km/h)	61
95th Speed (km/h)	66
Surface Width (m)	9.8
ROW Width (m)	20.1
Shoulder / Sidewalk	Gravel shoulder, Shared pedestrian/cyclist lane denoted by pavement marking on west side of the road
Posted Speed Limit (km/h)	50
Segment Length (km)	0.80
Street Imagery	
Potential Solutions	<p>Double Widened Centreline (0.5m apart) Centreline Flexible Bollard Flexible Delineators</p>

Location	Shore Acres Drive
Road Segment	20 th Sideroad to Everton Drive
AADT	1534
85th Speed (km/h)	63
95th Speed (km/h)	70
Surface Width (m)	10
ROW Width (m)	20.1
Shoulder / Sidewalk	Gravel shoulder
Posted Speed Limit (km/h)	50
Segment Length (km)	1.621
Street Imagery	
Potential Solutions	Island and Gateway Centreline Flexible Bollards Double Widened Centreline (0.5m apart)

Appendix G: Proposed Policy Update

CP. To be assigned by Clerks Services

Section:

Subsection:

Subject: Traffic Calming

Approval Authority:

Effective Date:

1. Policy Statement

This document presents a recommended traffic calming policy framework for the Town of Innisfil. Traffic calming is a tool available to the Town to address problematic traffic speeds on local and collector streets.

The original version of this document was prepared as part of the 2018 Town of Innisfil (Town) Transportation Master Plan (TMP) Update. The TMP Update furthers the development of a multimodal, multipurpose transportation network that serves people of all ages and abilities. The Traffic Calming Policy supports this goal by addressing increased traffic speeds and volumes, which pose a safety risk for all road users. The Policy is accompanied by - and should be read alongside - three other targeted documents: the *Pedestrian Crossing Policy*, the *Complete Streets Policy* and the *Town of Innisfil Traffic Calming Design Guide*. The policy is also informed by and aligns with the Town's draft *Official Plan*, and the Town's 2016 *Trails Master Plan*. Projects of this type do not require approval under the Ontario *Environmental Assessment Act*.

2. Purpose/Scope

This policy framework establishes methods for the initiation, preparation, and completion of traffic calming projects. The main components of the policy framework are:

- A description of traffic calming measures to be considered for use in Innisfil,
- An analysis and approval process that incorporates key requirements of resident participation, agency consultation, and Traffic Safety Advisory Committee Review, and that allows for pilot projects,
- Warrant criteria based on traffic conditions, safety and technical considerations, and impacts to emergency services,
- A ranking process that is used to prioritize traffic calming proposals.

While the process outlined in this document is intended to be clear and consistent, it is recognized that each location and traffic issue may be unique. This policy framework is intended to guide Town staff in applying their professional judgment to each unique situation.

The primary goals of this policy are to:

- Reduce traffic speeds and decrease through-traffic to acceptable levels to enhance the liveability of residential neighbourhoods;
- Promote safety, accessibility, comfort, and mobility for all road users
- Provide a tool that Town officials and the public are confident is effective, fair, and consistent in evaluating and prioritizing issues related to traffic speeds and volumes on local and collector streets.
- Support the retrofit of streets to align with the desired functionality and characteristics outlined in the Innisfil *Complete Streets Guidelines*.

Where possible, consideration should be given to improving the aesthetics of the roadway.

3. Definitions

Automated, Radar-Based Speed Collection: For longer term or permanent applications for speed data collection, automated, radar-based speed data collectors can be installed on roadsides within the study area. These speed data collection methodologies have been, and are currently being used by the Town.

Bicycle Network: Bicycle network refers to routes designated by the Town's Trails Master Plan, or in other Town Policy.

Horizontal Measures: Horizontal measures cause shifts in the horizontal alignment of the vehicle and forced turning movements, resulting in reduced vehicle volumes and short-cutting. Some horizontal deflection measures will also reduce vehicle speeds and conflicts between automobiles and other modes of travel.

Other Measures: Other measures are those that do not involve a horizontal or vertical change to the road surface, but still have an effect in changing driver behavior, most notably causing drivers to slow down. They are also effective in alerting drivers to the presence of people walking or cycling and encouraging predictable road use by all users.

On-the-ground Data collection: Traditional methods for collecting reliable speed and traffic data usually includes either a person(s), or a mechanical device (e.g., tube counters). More modern methods include the use of Traffic Cameras at the study location collecting traffic movements and/or speed data. These types of traditional and modern speed data collection methodologies are historically and currently in use by the Town.

Preventable Collisions: Preventable collisions are those that are considered preventable through the use of traffic calming measures (e.g. speed-related collisions).

StreetLight Data: StreetLight is an innovative company that uses "Big Data" (based on satellite-detected signals from cellphones and GPS units) to collect travel speeds and origins/destination. StreetLight's approach for data collection for all roadway facilities, 24 hours a day, all days of the year, is a viable method for obtaining recent (currently, within 2 months) traffic data in lieu of on-the-ground studies. The following is a summary of the positive and negative aspects of the StreetLight platform as it pertains to communities such as Innisfil.

Traffic Calming: Traffic calming, as defined by the Institute of Transportation Engineers (ITE) Subcommittee on Traffic Calming, 1997 is, “The combination of mainly physical measures that reduce the negative effects of motor vehicle use, alter driver behaviour and improve conditions for non- motorized street users.”

Traffic Cameras: Rather than have traditional on-the-ground data collectors situated within the study area collecting traffic volumes, devices such as traffic recording cameras can be temporarily installed to collect video footage. The footage can then be examined and analyzed.

Traffic Safety Advisory Committee: The Traffic Safety Advisory Committee (TSAC) is a committee that advises and makes recommendations to Council on matters respecting traffic safety within the Town of Innisfil.

4. Responsibility

As outlined elsewhere in this document Town Staff in Engineering and Operations are responsible for project initiation, initial screening, warrant criteria screening, project prioritization, and project implementation and maintenance. Staff are also responsible for the preparation of documents for Traffic Safety Advisory Committee and Council review and evaluation.

5. Application

This policy shall apply Town-wide primarily to existing roads eligible for the implementation of traffic calming measures as defined in the warrant criteria in **Section 6**. However, this policy does not restrict the application on new streets or in street re-design projects.

6. Administration

2.1 Background

This policy was developed taking into account Town and Provincial policy. It was based on the *Canadian Guide to Neighbourhood Traffic Calming*, prepared by the Institute of Transportation Engineers (ITE) and the Transportation Association of Canada (TAC), in 1998. It also considered traffic calming policies used by other municipalities throughout Ontario and pilot projects underway in Innisfil.

2.1.1 Legislative Framework

This document is being prepared as part of the Town of Innisfil (Town) Transportation Master Plan (TMP) Update. The TMP Update aims to further the development of a multimodal, multipurpose transportation network that serves people of all ages and abilities. The Traffic Calming Policy supports this goal by addressing increased traffic speeds and volumes, which pose a safety risk for all road users. The Policy is accompanied by and should be read alongside three other targeted documents: the *Pedestrian Crossing Policy*, the *Complete Streets Policy* and the *Town of Innisfil Traffic Calming Design Guide*. The policy is also informed by and aligns with the Town’s draft *Official Plan*, and the Town’s 2016 *Trails Master Plan*. Projects of this type do not require approval under the Ontario *Environmental Assessment Act*.

2.1.2 Best Practice Review

The traffic calming measures included in this policy are informed primarily by the *Canadian Guide to Neighbourhood Traffic Calming* (the Guide) and supported by recommendations from the National Association of City Transportation Officials (NACTO) *Urban Street Design Guide* and *Urban Bikeway Design Guide*.

Published in 1998 by the Transportation Association of Canada (TAC) and the Canadian Institute of Transportation Engineers (CITE), the Guide provides guidance on the design and installation of traffic calming measures. An update to the Guide is currently underway.

NACTO's *Urban Street Design Guide*, published in 2013, emphasizes the role of streets as public places, rather than solely conduits for traffic. It provides guidance on how to design for safe driving, biking, walking, and public activity. The *Urban Bikeway Design Guide*, published in 2014, provides an extensive review of speed and volume management techniques.

6.1.3 Review of Other Jurisdictions

This policy is informed by other traffic calming policies throughout Ontario, including: the Town of Milton's 2011 *Traffic Calming Policy*, the City of Barrie's *Traffic Calming Policy*, the Town of Ajax's *Traffic Calming Warrant Update*, the City of London's *Traffic Calming Practices and Procedures for Existing Neighbourhoods*, and the City of Toronto's 2010 *Traffic Calming Policy*

6.2 Traffic Calming Measures

This section discusses the traffic calming measures to be considered for Innisfil. Measures are grouped into three categories: vertical measures, horizontal measures, and other. The selected measure(s) will depend on identified issues and the road's function, however all measures shall be considered, as opposed to the exclusive use of speed humps. For the full list of the Town of Innisfil traffic calming measures toolbox, refer to the Town's Traffic Calming Design Guide.

6.2.1 Vertical Measures

Vertical measures are meant primarily to reduce vehicle speeds, but they may also contribute to volume reductions as it can take motorists longer to get to their destination as a result of reduced speeds.

6.2.2 Horizontal Measures

Horizontal measures cause shifts in the horizontal alignment of the vehicle and forced turning movements, resulting in reduced vehicle volumes and short-cutting. Some horizontal deflection measures will also reduce vehicle speeds and conflicts between automobiles and other modes of travel.

6.2.3 Other Measures

Other measures are those that do not involve a horizontal or vertical change to the road surface, but still have an effect in changing driver behavior, most notably causing drivers to slow down. They are also effective in alerting drivers to the presence of people walking or cycling,

and encouraging predictable road use by all users.

6.2.4 Benefits and Disadvantages

Effects from the implementation of physical measures may be both positive and negative. The Town of Innisfil Traffic Calming Design Guide presents the benefits and disadvantages of each include traffic calming measures as well as the relative cost for implementation.

6.2.5 Supplemental Measures

The traffic calming measures outlined in this policy can be supplemented by other measures. These options may be applied together with physical traffic calming measures or on their own when physical measures are not warranted.

Education

Traffic calming can be supported by education to encourage safe driving behavior. This can include brochures, public meetings, advanced warning or information signs, and street signs.

Signage

Traffic control signs should only be used in isolation when warranted or where physical measures are not feasible. Signage alone tends to be ineffective and not possible to enforce.

The use of stop signs solely as a traffic control measure is also not recommended. For example, introducing unwarranted midblock stop signs to slow traffic can cause driver confusion and potential enforcement problems.

The *Ontario Traffic Manual* provides the designer with the general requirements for most signing applications including islands, pedestrian crossings, object markers, lane lines and advance warning signs. The *Canadian Guide to Neighbourhood Traffic Calming* also provides direction with respect to the appropriate signage for specific traffic calming applications.

Enforcement

An increase of police presence is a viable solution to minimizing speeds and traffic related violations on the Town's roadways. Police visibility can reduce traffic-related issues on neighbourhood roadways. However, the effect of enforcement is limited to the resources available.

Roadside Design

A motorist's perception of the appropriate driving speed is influenced by the design aspects of the roadway. Research indicates that vehicle speeds are slower in areas where the vertical elements (such as street trees, adjacent buildings, light poles designed in a visually appealing manner), are greater than the width of the road. These elements can be implemented either separately or in conjunction with other traffic calming measures and have the added benefits of improving aesthetics and creating a sense of place as opposed to a vehicular thoroughfare.

2.3 Proposed Implementation Framework

The Traffic Safety Advisory Committee

The Traffic Safety Advisory Committee (TSAC) is a committee that advises and makes recommendations to Council on matters respecting traffic safety within the Town of Innisfil.

The role of the committee is to review traffic safety concerns as identified by various stakeholders including Council, staff, residents, South Simcoe Police Services, and other interested Parties. The Committee shall meet as required to evaluate potential solutions and to prepare recommendations or a plan of action for the approval of Council.

The goal of the Committee is to promote and support the implementation of strategies and solutions to alleviate traffic safety concerns through the use of public education and awareness, the recommendation of by-laws, and other methods that will have the effect of improving the general safety of the public at large.

Town Staff will engage with stakeholders to provide agenda items for Committee consideration, and the Committee shall meet as required to evaluate potential solutions. When required, the Committee will prepare recommendations or a plan of action for the approval of Council. If potential solutions are minor in nature and are within the scope of current Council-approved operating and capital budget amounts, Engineering and Operations staff may implement such solutions as suggested by the Committee without further approval from Council.

Project Initiation

The traffic calming review process can be initiated proactively by Town Staff to investigate areas of potential concern, or reactively, in response to a complaint from the public, community associations, school boards, or businesses.

PROACTIVE

Application of the ongoing proactive program involves continuous screening to be performed to update the program using the new data collected every year.

REACTIVE

A traffic calming concern could be raised directly in person, by letter, by telephone, by e-mail or via fax. A process must be established to record and track the issue so that it cannot be lost or set aside. A request form should be created and made available on the Town's website. A formal response to the originator is required at this point, to acknowledge receipt of their communication and to advise as to how the issue is to be handled.

Initial Screening

Once a traffic calming request is received, the first step is to pre-screen the request using the criteria shown in Table 1. This process will help determine if a location is eligible for the implementation of traffic calming measures. The pre-screening criteria presented in Table 1 should be considered as the minimum eligibility requirements for traffic calming measures. The location specified in the request is only to be considered as a potential candidate for traffic calming applications if all pre-screening criteria are met. Investigation

Review any past concerns and past traffic count data if not older than five years for volume data and not older than three years for speed data, otherwise conduct new counts (volume and speed). Speed and volume data may be collected using traditional on-the-ground studies using video analytics, radar, or manual studies. Alternatively, commercially available GPS and location-based services data (collected from smartphone apps) may be used.

Warrant Criteria Screening

Refer to the warrant criteria in Table 1. If warrants are met, proceed. If no warrants are met,

then request speed enforcement or implement a selection of the supplementary measures outlined above.

Development of Alternatives

The traffic calming alternatives as detailed in Section 4 may be implemented on a trial basis to gauge the impact of their permanent application in an adjustable and cost-effective manner. The proposals must be evaluated to determine if there may be significant traffic impacts on adjacent streets. If there is this potential, the review of the traffic calming proposal should be modified to include the adjacent, impacted streets.

Finalize Concept

Develop final traffic calming concept.

TSAC Review

Conduct Traffic Safety Advisory Committee (TSAC) Review of the traffic calming proposal. The TSAC makes all traffic calming recommendations to Town Council.

Prioritization

Determine ranking of installation as outlined in Table 2

Council Review

Present proposal to Council, either as part of the regular, two-year Capital Budget, or as a mid-year request. If approved by Council, proceed to implementation.

Evaluation

Conduct an after study of speed and volume following the implementation of a measure using the same methods outlined in the investigation stage. Both temporary and permanent measures shall be monitored for a period of six months to a year after implementation to determine their effectiveness.

The evaluation will assess the project's effectiveness in mitigating the traffic related problem and impact on the surrounding road network. An information report shall be prepared for the TSAC, summarizing effectiveness. The report will identify those projects that may require follow-up measures and reintroduction into the traffic calming program. Modifications to permanent or temporary traffic calming measures, or the conversion of temporary measures to permanent measures will require the same process as implementation of a new project.

The findings of post implementation studies will be used to make refinements to the Traffic Calming Policy. As more local experience is gained, the effectiveness of various traffic calming measures and impacts will be valuable in gauging their applicability in future projects.

6.3.1 Warrant Criteria for Traffic Calming

The warrant criteria for traffic calming measures are shown in **Table 1** All requirements must be met to meet the warrant and be eligible for traffic calming.

Table 1: Warrant Criteria for Traffic Calming Measures

Criteria	Requirement
Location Area	Primarily residential area
Road Classification	Local or Collector
Road Grade	Road grade \leq 8% (depends on mitigative measure)

Street Length	Street segment length with uninterrupted traffic flow (no traffic control) \geq 150 m
Traffic Volumes	Traffic volumes \geq 250 vpd (vehicles per day) (data no older than five years)
Posted Speed Limit	Posted speed limit of 50 km/h or less
Vehicle Speeds	85 th percentile speed is 10 km/h or more over posted speed limit (using available data, not older than 3 years)

6.3.2 Project Ranking Framework

The point-based ranking system to be used for implementation is outlined in **Table 2**.

Table 2: Ranking Criteria for Traffic Calming Project Prioritization

Criteria	Point Criteria	Max Pts.	Score
Vehicle Volumes	Local: 5 pts for every 1,000 AADT (rounded down). (e.g., 1,400 AADT would get 5 pts) Collector: 5 pts for every 2,000 AADT (rounded down). (e.g., 1,700 AADT would get no points, 2,400 would get 5 pts)	20	
Collision History	1 pt. per collision of any type (other than involving pedestrians/cyclists) in the last 5 years. 5 pts. per collision involving pedestrians or cyclists in the last 5 years.	30	
Public Complaints	5 pts. per complaint regarding vehicle speeds in most recent year to a maximum of 20 points.	20	
Pedestrians and Cyclists	10 pts for no sidewalk or bike lanes. 5 pts for every nearby (within 500 m) pedestrian generator (e.g., park, places of worship, town hall, mall, theatre, library). 10 pts for every nearby school.	30	
Total (minimum 15 to continue data collection)		100	

Criteria	Point Criteria	Max Pts.	Score
Vehicle Speeds	1 pt. for every 1 km/h that the 85 th percentile speed exceeds the posted speed limit. Additionally, 1 pt. for every 1 km/h 95 th percentile speed exceeds 20 km/h over the speed limit.	30	
Total (minimum 25 for TCM consideration)		130	

³ Preventable collisions are those that are considered preventable through the use of traffic calming measures (e.g. speed-related collisions)

⁴ Bicycle network refers to routes designated by the Town's Trails Master Plan, or in other Town Policy

6.3.3 Removal Process

The process to have traffic calming device(s) removed permanently is as follows:

- A citizen, agency, or stakeholder may request that traffic calming devices be removed.
- A petition form must be obtained through the Town where the Town staff would outline a study area corresponding with the properties abutting the

roadways forming the study area of the original traffic calming proposal. The petition must then be signed by a minimum of 60% of study area residents, agencies, and businesses, and property owners in support of the removal

- Once the petition form is completed and submitted to the Town, staff would review the project's effectiveness and potential problems associated with its removal and submit a formal report to Council with their recommendations.
- If recommended for removal and approved by Council, property owners within the study area would share the cost of the removal.
- If removed, no request a traffic calming study will be considered at that location for at least three years.

6.4 Program Planning & Resource Requirements

Resource requirements encompass a variety of factors and shall be considered upon the start of all traffic calming projects. The number of traffic calming initiatives undertaken annually will depend on the Town's Capital Budget allocation for traffic calming projects and availability of staff resources. The list of approved projects and their priority ranking will be maintained and updated annually. Depending on the types of traffic calming measures installed, materials used and extent of their application, the cost of implementation will vary. Where funding is limited, a phased project implementation plan shall be considered.

The evaluation of new traffic calming requests shall be coordinated with the annual construction schedule, or two times per year.

The following sections outline the costs associated with a traffic calming program.

6.4.1 Administration Costs

Administration Costs include staff time to obtain and analyze data, ongoing prioritizing of requests, public consultation and design of traffic calming measures. The associated costs for administration would fall under the normal operating budget by utilizing existing staff and resources.

6.4.2 Capital Costs

Capital Costs relate to the construction of traffic calming devices. Traffic calming capital costs will be solely the responsibility of the Town.

The budgeting of each potential TCM project will depend on the scope of the application, including the individual costs and timelines of the TCM measures employed. For projects not requiring significant roadway modifications, it is advised that the budgeting for the design and construction be done within the same year. For larger traffic calming projects, the budget for the design phase should be prepared for the first year and the construction budget should be prepared for the following year.

Design

Most of the potential TCM presented in this Guide require some measure of design. Potential TCM may have several variations which must be explored, with the appropriate application being chosen based on local traffic patterns, roadway configurations, environmental conditions, and other factors. It is advised that, once TCM are chosen and prioritized, the Town engage a professional designer who is thoroughly familiar with TCM, including their specific design and implementation requirements. The Town may choose to undertake some of the design process, themselves, but it is essential that a Traffic Engineer (or equivalent) at least review the Town's design and implementation plan.

The design process for virtually all the TCM presented in this Guide is already carefully outlined in various TCM design guides. The Transportation Association of Canada (TAC) has a detailed design process for TCM, as does the Federal Highway Administration (FHWA) and the American Association of State Highway and Transportation Officials (AASHTO) in the United States. These design guides are complete and well researched and provide the necessary instructions for designing the TCM presented in this Innisfil TCM Guide.

The Town has previously implemented a variety of TCM on various roadways, including temporary and permanent mounted radar speed displays, as well as temporary roadside radar speed display boards carried by mobile trailers. The results of these TCM applications are discussed further in the Innisfil Pilot Study Report.

Construction

Once a TCM has been chosen, and a full design is completed, the application must be installed correctly at the designated location. Ideally, these measures would be constructed when weather and roadway conditions are suitable (i.e., not during late fall or winter months). Several of the potential TCM may need to be removed in the fall and reapplied during the spring as they may interfere with winter snow removal, and possibly get damaged. If several TCM are chosen for a particular location, they should all be implemented within a short period of time to achieve the desired, combined traffic calming effect.

6.4.3 Operations and Maintenance Costs

The costs for maintaining the traffic calming device shall be the responsibility of the Town. However, if the device in the future has a request for removal than the associated cost shall be the responsibility of the residents and stakeholders affected.

Winter Maintenance of Traffic Calming Devices

The design and implementation of traffic calming devices must include a consideration of winter maintenance to ensure their year-round effectiveness and safety, and to

ensure plowing and other winter maintenance activities are not unduly impacted. The *Canadian Guide to Traffic Calming* includes notes on the experiences of other Canadian municipalities with similar winter conditions to the Town of Innisfil and their approach to traffic calming. In general, devices can be used successfully in all four seasons, with the following considerations:

Vertical Deflection

- Snow clearing time may be increased.
- Plow operators must slow at edge of vertical deflection devices to avoid damage. Some plows may be required to lift the blade.
- Locations of vertical deflection devices should be marked by signage.

Horizontal Deflection and Obstructions

- Signage or vertical delineators should be employed to mark edges of irregular curbs.
- The design of traffic circles or roundabouts should include radii that plows can circulate.
- On-street parking should be restricted during and/or after snowfalls to facilitate plowing.
- Little or no increase in snow clearing time expected, depending on the device employed.

The temporary alternatives outlined above may also be removed during winter months, recognizing that their associated traffic calming benefits would then also be lost.

6.5 New Roadway Facilities

For greenfield developments involving the construction of new roadways and intersections, a traffic calming review should be conducted during the initial roadway network planning stage. During this planning process, a traffic calming plan should be required, with all potential TCM included on the site plans. All TCMs to be used for new developments should be selected and installed in accordance with the latest Innisfil Traffic Calming Design Guide.

7. Exceptions

No exceptions.

8. References

9. Revision History

Revision No.	Date	Summary of Changes	Approval Authority